HEWLETT PACKARD

Microsoft Excel Guide–The Basics

OMNIBOOK

Microsoft Excel Guide—The Basics

Edition History

Edition 1 ..... September 1993

The contents of this manual are printed on recycled paper.

Notice

For warranty and regulatory information, see chapters 14 and 15 of the OmniBook *Operating Guide.*

This manual and any examples contained herein are provided "as is" and are subject to change without notice. Hewlett-Packard Company makes no warranty of any kind with regard to this manual, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Hewlett-Packard Co. shall not be liable for any errors or for incidental or consequential damages in connection with the furnishing, performance, or use of this manual or the examples herein.

Consumer transactions in Australia and the United Kingdom: The above disclaimers and limitations shall not apply to Consumer transactions in Australia and the United Kingdom and shall not affect the statutory rights of Consumers.

© Copyright Hewlett-Packard Company 1993. All rights reserved. Reproduction, adaptation, or translation of this manual is prohibited without prior written permission of Hewlett-Packard Company, except as allowed under the copyright laws.

The programs that control this product are copyrighted and all rights are reserved. Reproduction, adaptation, or translation of those programs without prior written permission of Hewlett-Packard Co. is also prohibited.

Portions of the programs that control this product may also be copyrighted by Microsoft Corporation, Traveling Software, Inc., SystemSoft Corp., Houghton Mifflin Co., Chips & Technologies, Inc., Delrina Technology, Inc., and Future Soft Engineering, Inc. See the individual programs for additional copyright notices.

Microsoft, MS, and MS-DOS are registered trademarks and Windows is a trademark of Microsoft Corporation. LapLink Remote Access is a trademark of Traveling Software, Inc. WinFax and Delrina are registered trademarks of Delrina Technology Inc. DynaComm and Future Soft Engineering, Inc. are registered trademarks of Future Soft Engineering, Inc. PostScript is a registered trademark of Adobe Systems, Inc., in the U.S. and other countries. CompuServe is a U.S. trademark of CompuServe, Inc.

Hewlett-Packard Company
Corvallis Division
1000 N.E. Circle Blvd.
Corvallis, OR 97330, U.S.A.

In This Book

This *Microsoft Excel Guide* describes the basic procedures that are used most frequently in Microsoft Excel. You can use it as a light-weight reference that you can easily carry with you when working away from your office or home. Although this manual contains an extensive number of tasks, it doesn't describe every feature. This guide is intended to complement your Microsoft Excel documentation rather than replace it. And remember, all of the procedures you need to work with Microsoft Excel are described in the online Help.

To help you learn and use Microsoft Excel efficiently, this manual is organized by tasks, beginning with the most common spreadsheet tasks, and moving on to more advanced features. If you're new to the Windows operating environment, you should learn Windows fundamentals before you begin working with Microsoft Excel. If necessary, refer to the Windows and Microsoft Excel sections of the OmniBook *Quick Start Guide* for a review.

If you'd like to have original Microsoft manuals for Microsoft Excel, you can order them using the form included in the OmniBook *Quick Start Guide*.

Finding Other Learning Sources

After you've worked with Microsoft Excel for a while, you may find that you'd like to explore additional learning or reference materials. A partial list of books follows, with subjects ranging from introductory to advanced. For a comprehensive look at the many books published about Microsoft Excel for Windows, contact your local bookstore or library.

For introductory material, see:

- *A Quick Course in Excel 4 for Windows*, by Joyce Cox and Patrick Kervan (Online Press Incorporated, 1992).
- *The First Book of Excel 4*, by Christopher Van Buren (Sams, 1992).

For quick reference material, see:

- *10 Minute Guide to Excel 4 for Windows*, by Michael Miller (Sams, 1992).
- *Excel 4 for Windows Quick Reference*, by Don Roche, Jr. (Que, 1992).
- *Excel 4 for Windows Instant Reference*, by Douglas Hergert (Sybex, 1992).

For comprehensive material, see:

- *Microsoft Excel User's Guide* and *Microsoft Excel Function Reference* (Microsoft Corporation, 1992). The official Microsoft Excel manuals.
- *Excel 4 Super Book*, by Michael Griffin and others (Sams, 1992).

Contents

1. Putting Microsoft Excel to Work

Overview of Microsoft Excel Spreadsheets 1-3
Starting with Microsoft Excel 1-8
To start Microsoft Excel 1-8
To get online Help in Microsoft Excel 1-8

2. Managing Your Files

Working with Files and Documents 2-3
To create a new worksheet 2-3
To open an existing document 2-3
To save a document under the same name 2-4
To save a document in a different format 2-4
To change automatic saving of your work 2-4
To create an automatic backup file 2-5
To close a document 2-5
To delete a document 2-6
Protecting Documents 2-7
To set password protection 2-7
To remove or change password protection 2-8

3. Creating and Editing Worksheets

Creating a Worksheet 3-3
To create a new worksheet 3-3
To select a single cell 3-3
To select a range of cells 3-4
To make a nonadjacent selection 3-4
To move within a worksheet 3-5
To move in blocks of cells 3-5
To select a block of cells in the same row or column . . 3-5
To find and select a cell or range 3-5
To select cells with specific contents 3-6
To move within a selection 3-7
To enter data in a cell 3-7
To enter data in a cell range 3-8
To enter a date or time 3-8
To create a logical series of entries 3-9

To adjust values to a smooth progression 3-9
To create a linear forecast 3-10
To undo a command or action 3-11
To repeat a command or action 3-11
Editing a Worksheet 3-12
To edit a cell entry 3-12
To copy or move characters from a cell entry 3-13
To copy a cell or range into adjacent cells 3-13
To replace cells by moving or copying 3-13
To insert cells by moving or copying 3-14
To cancel a moving border 3-15
To combine copied formulas or values with existing cells 3-15
To copy specific cell attributes 3-16
To insert rows, columns, or a range by dragging 3-16
To insert rows, columns, or a range using the menu . . 3-17
To clear cell contents, formats, and notes 3-17
To clear a range of cells 3-18
To delete cells, rows, or columns 3-18
To search for text in cells 3-19
To sort worksheet data 3-20
To check spelling 3-20
Working with Formulas 3-22
To enter a formula 3-23
To enter cell references in a formula 3-24
To add the values of cells 3-25
To paste a name into a formula 3-25
To paste a worksheet function into a formula 3-25
Controlling Calculation 3-27
To switch between manual and automatic calculation . 3-27
To calculate only the active worksheet 3-27
To calculate all open documents 3-27
To freeze the value in a cell 3-28
To freeze the values in a range of cells 3-28
To freeze a portion of a formula 3-28

4. **Formatting Worksheets**
Formatting a Worksheet 4-3
To change the appearance of data 4-3
To assign a number, date, or time format 4-4
To align text and numbers 4-5
To justify text across a range of cells 4-5
To center text across columns 4-5
To format a cell entry or formula into separate lines . . . 4-5
To format a cell entry or formula with tabs 4-6
To adjust the column width or row height 4-6
To reset column width or row height 4-6
To change the default column width or row height . . . 4-7
To hide a row or column 4-7
To make a hidden row or column visible 4-7
To add borders or shading 4-7
To shade cells with patterns 4-8
To automatically format a range 4-9
To undo all range formatting 4-9
To refine an automatic format 4-10
To circle a cell or range 4-10
Using Styles for Consistent Formatting 4-11
To apply a style 4-11
To create a style 4-11
To copy styles from another worksheet 4-12
To redefine a style 4-12
To delete a style 4-13

5. **Organizing Worksheets**
Documenting a Worksheet 5-3
To name a cell, range, or formula 5-3
To edit a name's reference or formula 5-4
To paste a name into a formula 5-4
To delete a name no longer in use 5-5
To add a text box 5-5
To edit the text in a text box 5-5
To delete a text box 5-6
To format the alignment of text-box text 5-6
Outlining a Worksheet 5-7
To outline your worksheet data 5-7
To promote or demote a row or column 5-8
To display or hide the outline symbols 5-9

To collapse or expand a level 5-9
To display specific levels of an outline 5-9
To select a section of an outline 5-9
To select and chart or copy visible cells in an outline . . 5-10
To clear an outline from a worksheet 5-10
Creating and Using a Document Template 5-11
To create a template 5-11
To use a template 5-11
To open and edit a template 5-12

6. Viewing and Analyzing Worksheet Data
Changing Your View of a Worksheet 6-3
To change how a worksheet is displayed 6-3
To open a new window into a worksheet 6-4
To arrange open windows in the workspace 6-4
To split a window into panes 6-4
To remove split panes from a window 6-5
To freeze both column and row titles and automatically split panes 6-5
To unfreeze titles 6-5
To zoom in or out on a worksheet 6-6
To save a view of a worksheet 6-6
To display a saved view 6-6
Analyzing Worksheet Data 6-7
To solve for a cell value in a formula 6-7
To create a set of scenarios 6-8
To view a scenario 6-9
To change the input values for a scenario 6-10
To create a summary of scenarios 6-10

7. Working with Databases
Creating and Using a Database 7-3
To design a database 7-3
To create a database 7-4
To add records 7-5
To edit records 7-6
To cancel changes to a record 7-6
To find records 7-6
To delete records 7-7
To sort a database 7-8
To sort a database by more than one sort key 7-8

To undo a sort 7-9
Reporting with a Database 7-10
To set up a criteria range 7-10
To set up an extract range 7-12
To extract database records 7-12
To print database records 7-13

8. **Working with Charts**
Creating a Chart 8-3
To create an embedded chart on a worksheet 8-3
To create a chart document 8-4
To change the chart type or format 8-4
To change the chart type and retain your custom formatting 8-5
To restore a chart to the preferred format 8-6
To change the preferred chart format 8-6
Editing and Formatting a Chart 8-7
To open a chart document 8-7
To open an embedded chart in its own window 8-7
To select chart items 8-8
To add unattached text 8-8
To add a chart title or axis title 8-9
To label a data point 8-9
To delete chart text 8-10
To edit chart text 8-10
To format chart text 8-11
To add a chart arrow 8-11
To delete a chart arrow 8-11
To format the arrow shaft and arrowhead 8-11
To add a legend 8-12
To delete a legend 8-12
To format a legend 8-13
To format the plot area, 3-D walls, or 3-D floor 8-13
To adjust the 3-D chart view 8-14

9. Printing and Sending Documents

Printing Your Work 9-3
To preview a document 9-3
To select or set up a printer 9-4
To print a document 9-5
To print only a range of cells 9-5
Laying Out Printed Pages 9-7
To set up the page layout 9-7
To insert a manual page break 9-8
To remove a manual page break 9-9
To create a header or footer 9-9
To create row or column titles 9-10

10. Working with Multiple Documents

Using Multiple Documents 10-3
To copy data from one worksheet to another 10-3
To link a range of cells 10-4
To view or edit the source data for a link 10-4
To enter an external reference in a formula 10-5
To open, update data from, or view source worksheets . 10-5
To redirect links for a source worksheet 10-6
Using Multiple Applications 10-7
To open a document from another application 10-7
To save a Microsoft Excel document for use in another application 10-8
To create a new embedded object in a worksheet . . . 10-8
To embed data from another application into a worksheet 10-9
To link data from another application into a worksheet . 10-9
To embed or link Microsoft Excel data into another application 10-10
To edit an embedded object or linked data 10-10
Managing Documents with Workbooks 10-11
To create a new workbook 10-11
To add a document to a workbook 10-12
To move between workbook documents 10-12
To display the Workbook Contents window 10-12
To reorder documents in a workbook 10-13
To remove a document from a workbook 10-13
To move a document from one workbook to another . . 10-13
To copy a document from one workbook to another . . 10-13
To bind or unbind a document in a workbook 10-14

11. Automating Tasks with Command Macros

Using Command Macros 11-3
To record a command macro 11-3
To pause the recorder while recording a command macro 11-4
To run a command macro 11-4
To stop a command macro while it's running 11-4

12. Using the Keyboard and Toolbars

Keyboard Shortcut Reference 12-3
To get Help 12-3
To move and select 12-3
To move within a select 12-4
To select items in charts 12-5
To edit 12-5
To format 12-6
To use the formula bar 12-7
To work with files 12-7
To work with windows 12-8
To find records in a database 12-8
Toolbar Summary 12-9
To display or hide a toolbar 12-9
To move a toolbar 12-10

13. Worksheet Function Reference

Worksheet Functions Listed Alphabetically 13-3
Worksheet Functions Listed by Category 13-4
Financial Functions 13-5
Date and Time Functions 13-8
Math and Trig Functions 13-9
Statistical Functions 13-14
Lookup and Reference Functions 13-23
Database Functions 13-25
Text Functions 13-27
Logical Functions 13-29
Information Functions 13-30

14. If Things Go Wrong

Problem-Solving 14-3
Data-Entry 14-3
Editing 14-4
Formatting 14-5
Formulas 14-5
Databases 14-7
Charts 14-7
Files 14-8
Printing 14-9
Workbooks 14-9
Macros 14-10
Linking and Embedding 14-10

Index

1

Putting Microsoft Excel to Work

Putting Microsoft Excel to Work

In This Chapter

Welcome to Microsoft Excel 4.0a, a powerful spreadsheet application built into your OmniBook. Microsoft Excel provides the automated tools you need for your data analysis, list keeping, and calculations—as well as the presentation tools you need for reporting your results.

This chapter shows you

- Some key features of Microsoft Excel.
- The first steps for using Microsoft Excel.

Microsoft Excel 4.0a on the OmniBook has several additions and deletions compared to Microsoft Excel 4.0a for PCs. For a summary of the differences, see chapter 12 in the OmniBook *Operating Guide*.

Overview of Microsoft Excel Spreadsheets

This section highlights some of the more important features of Microsoft Excel. You can use these features to create documents that satisfy your individual needs:

- *Worksheets*. You can store, manipulate, and calculate data such as numbers, text, and formulas on a worksheet. You can add a chart directly to your worksheet. You can use predefined formats to create tables.
- *Databases*. You can conveniently sort, search, and manage a large amount of information on a worksheet using the standard database operations.
- *Charts*. You can quickly present your worksheet data visually in a chart. You can choose from the many built-in variations of two-dimensional (2-D) and three-dimensional (3-D) chart types.
- *Presentations*. You can use cell styles and table formats to create high-quality presentations. You can display these directly on the screen or print them.

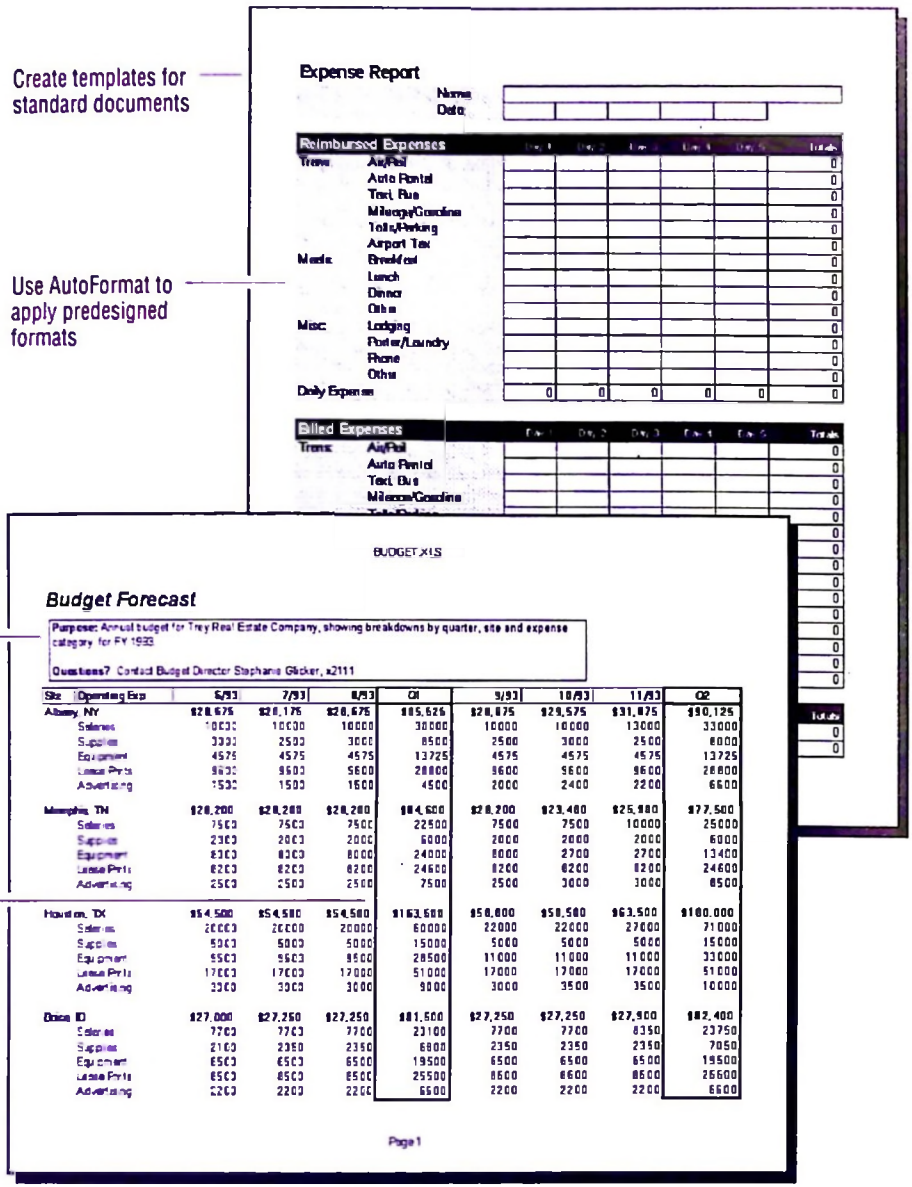
On the following pages you'll see examples of features you'll want to use right away, and others you'll file away to use later when you're more familiar with Microsoft Excel. For details about the features introduced here, see the chapter mentioned at the end of each feature.

Create templates for standard documents

Use AutoFormat to apply predesigned formats

Check for spelling errors

Use borders and shading for emphasis



Do you want a simple way to emphasize cells?

Add a border or shading. When you need to make cells stand out, add a border or apply some shading. You can place a border around individual cells or entire ranges, and you can fill cells or ranges with shading or patterns.

See "To add borders or shading" in chapter 4.

Do you want to apply a professionally designed format to a table?

AutoFormat the worksheet. AutoFormat will apply one of 14 professionally designed formats to your worksheet. With AutoFormat, you can create attractive tables with a few simple clicks of the mouse.

See "To automatically format a range" in chapter 4.

Do you want to check for typos and misspelled words?

Check the spelling in your document. The spelling feature can check for spelling or typographical errors before you print your document. You can add to the dictionary any special words that you use often, including proper nouns and special terminology.

See "To check spelling" in chapter 3.

Do you often create the same type of spreadsheet?

Create a template. A template is a document you create as the basic pattern for other similar documents. You can create worksheets and charts using templates already set up with text, formulas, styles, and formats. Templates can save you time and maintain document consistency.

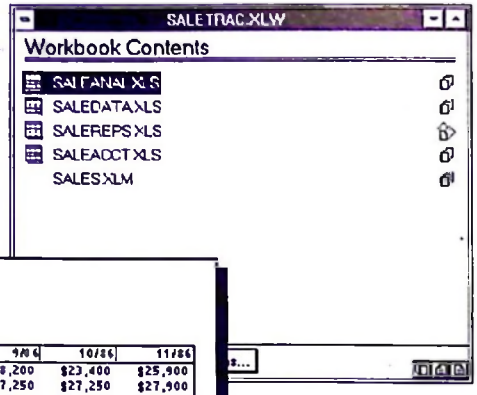
See "Creating and Using a Document Template" in chapter 5.

Do you need to manage large amounts of data?

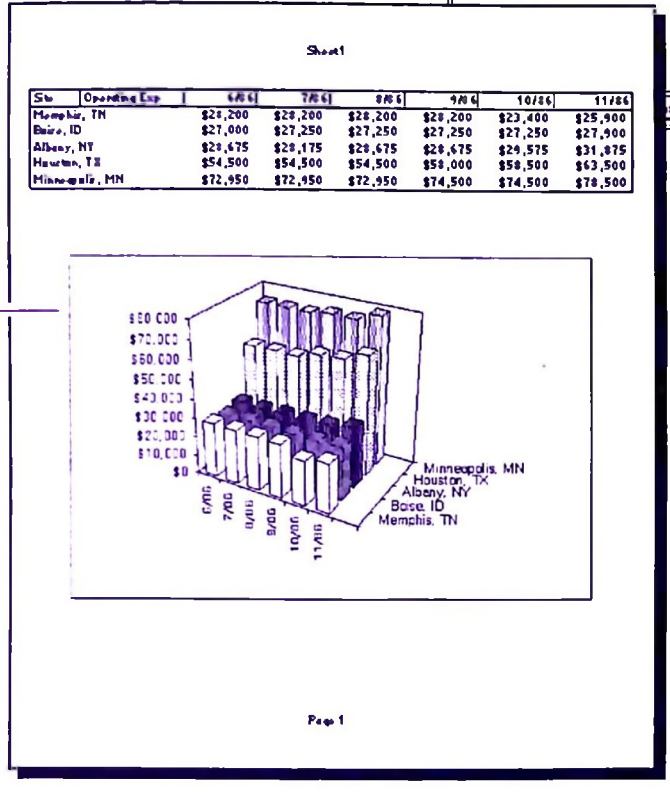
Create a database. By using your worksheet data as a database, you can easily store and manipulate complex data or large amounts of data. You can search and find specific data, sort data alphabetically or numerically, and extract subsets of data based on criteria you define.

See chapter 7, "Working with Databases."

Manage several related documents in a workbook



Summarize your data with charts



Do you want to present your data graphically?

Create a chart. Microsoft Excel's ChartWizard walks you through the steps of creating a chart. You can choose from 14 different chart types, including 2-D and 3-D bar, column, surface, area, and pie charts to present your data in the most effective way.

See chapter 8, "Working with Charts."

Do you prefer choosing commands with the keyboard?

Use keyboard shortcuts. Microsoft Excel has a set of keyboard shortcuts that you can use to carry out commands and select dialog box options directly from the keyboard.

See "Keyboard Shortcut Reference" in chapter 12.

Do you often work with several documents together?

Create a workbook. You can store related worksheets together in a single file, called a workbook. From the Workbook Contents window, you can organize and access your files easily and quickly.

See "Managing Documents with Workbooks" in chapter 10.

Do you often repeat a series of actions or commands?

Record a command macro. Command macros record a series of actions or commands. You can play them back at any time to perform those actions again.

See chapter 11, "Automating Tasks with Command Macros."

Do you need to show your spreadsheets or charts in reports or other documents?

Link up with Microsoft Word. You may have Microsoft Excel charts or spreadsheets that would enhance a business report. You can include a worksheet or chart in Word while maintaining its link to Microsoft Excel, or you can include a picture of a chart or worksheet in a Word document.

See "Using Multiple Applications" in chapter 10.

Starting with Microsoft Excel

The first steps for using Microsoft Excel are described below:

- Starting Microsoft Excel.
- Getting online Help whenever you need it.

To start Microsoft Excel

- Press (Fn)+(F2).
  -or-
  In Program Manager, double-click the Microsoft Excel icon.

To switch back to Microsoft Excel when you're working in another application, press (Fn)+(F2).

To get online Help in Microsoft Excel

- Press (F1) in any situation—in a document, in a dialog box, in a menu.
  -or-
  From the Help menu, choose Contents to display the Help contents.
  -or-
  In the Standard toolbar, click the Help button (or press (Shift)+(F1)) to get the "question-mark" pointer, then click any element of the Microsoft Excel workplace to get an explanation of it.

Inside the Help window, you can move around to any topics you're interested in. For more information about using online Help, see chapter 6 in the OmniBook *Operating Guide*—or press (F1) while the Help window is active.

2

Managing Your Files

Managing Your Files

In This Chapter

This chapter describes the basics you need to manage Microsoft Excel documents. Some of the topics included cover the basic survival skills needed for Microsoft Excel, such as how to create and work with Microsoft Excel documents—while others show more advanced skills, such as protecting your documents with passwords.

This chapter shows you how to

- Open Microsoft Excel documents.
- Save and close documents.
- Protect your documents.

Working with Files and Documents

In order to work with spreadsheets and graphs, you must start Microsoft Excel and open or create a document. You can edit a document and change it as you like. When you're finished editing your document, you can save it, close it, or print it. You can set up an automatic backup file to be saved each time you save your document. You can also delete files from the disk while in Microsoft Excel. This section gives you step-by-step instructions for

- Opening and saving documents.
- Creating backup files.
- Closing documents.
- Deleting documents.

New Worksheet button

To create a new worksheet

- Click the New Worksheet button on the Standard toolbar.

Microsoft Excel opens a new worksheet named *Sheet2* or similar. When you close the worksheet (or exit the application), Microsoft Excel prompts you to save and name it.

Open File button

To open an existing document

1. Click the Open File button on the Standard toolbar.
2. Select the document you want to open.

   If you don't see the file, select a new drive or directory, or select a new file type.

3. Choose OK.

If you want to open several documents, select the first document, then hold down Ctrl and select the others you want to open. (If you select a document by mistake, continue holding Ctrl and click the selected document a second time to unselect it.) All of the selected documents are opened when you choose OK.

If you want to protect against making changes to a document, you can select the Read Only option in the Open dialog box.

Hint

To open a recently opened document, you can choose one of the documents listed at the bottom of the File menu.

Save File button

To save a document under the same name

- Click the Save File button on the Standard toolbar.

  Microsoft Excel saves the active document under its current name. If you want to save it with a new name, use the File menu Save As command.

  If you're saving the document for the first time, Microsoft Excel asks you to name the document. Type the name for the document, make any changes you want to the directory or drive, and choose OK.

To save a document in a different format

Normally, Microsoft Excel saves a document in Normal format, meaning Microsoft Excel format. However, you might want to change the format of an existing document. For example, you might want to open a spreadsheet with another application or with an earlier version of Microsoft Excel.

1. From the File menu, choose Save As.
2. Select the desired format in the Save File As Type box.
3. Choose OK.

To change automatic saving of your work

You can tell Microsoft Excel how often to save the current document to reduce the risk of data loss. To speed the process, you may want to close files when you're not actively editing them.

1. From the Options menu, choose AutoSave.
2. Select how often you want save your work: High (3 minutes), Medium (9 minutes), or Low (30 minutes).
   -or-
   Select Never to turn off this feature.
3. Choose OK.

You can also specify that either the active document or all open documents be saved.

CAUTION If you open a file so you can change it and save the changes under a different name, use the File menu Save As command immediately after you open the file. By giving the open document its new name, you prevent the original file from being automatically changed.

To create an automatic backup file

You can set your document to automatically create a backup copy each time you save the file in the future. Microsoft Excel uses the next most recently saved version of the file as the backup. It keeps only one backup file for each document.

1. From the File menu, choose Save As.
2. Choose Options.
3. Select the Create Backup File check box.
4. Choose OK.
5. Make any other changes to the file name, directory, or drive.
6. Choose OK.

   Each time you save the file, Microsoft Excel stores the backup as *filename*.BAK.

To close a document

When you're finished with a document, you can close it to remove it from the workspace and recover the corresponding memory.

- To close the active document, from the File menu choose Close.
  -or-
- To close all open documents, hold down (Shift) and select the File menu, then choose Close All.

  Microsoft Excel asks if you want to save changes for each unsaved document.

To delete a document

The Delete command deletes any saved worksheet, chart, workbook, or other file from your disk and cannot be reversed with the Undo command. If the document is still open in Microsoft Excel, however, that working copy is not deleted. You can save this open copy of your document.

1. From the File menu, choose Delete.
2. Select the document you want to delete.

   If you don't see the file, select a new drive or directory, or select a new file type.

3. Choose OK to delete the file.

   Microsoft Excel asks if you want to delete the document.

4. Choose Yes to delete the document.
5. Choose Close to close the dialog box.

Protecting Documents

Microsoft Excel offers document protection to guard your documents against unauthorized use or change. You can prevent others from opening your document by assigning it a protection password. You can also prevent others from changing your document by assigning it a write reservation password. This section shows you how to

- Prevent a document from being opened.
- Prevent changes from being saved to a document.

To set password protection

When you set up a password, you can prevent your documents from being opened without knowing the password—or you can set up a *write reservation* password, which allows others to read the document but not to save any changes. A document with a write reservation password can, however, be saved under a different name by anyone.

CAUTION

Once you've set password protection for a document, you *cannot open it again* without your password. It's a good idea to keep a list of your passwords and their corresponding document names in a safe place.

1. Open the document you want to protect.
2. From the File menu, choose Save As.

   If you want to save the protected document under a new name, type a name in the File Name box.

3. Choose Options.
4. Type a password in the box next to the type of protection you want:

To prevent users from	Type a password here
Opening your file	Protection Password box
Changing your file	Write Reservation Password box

   As you type a password, an asterisk masks each character you type.

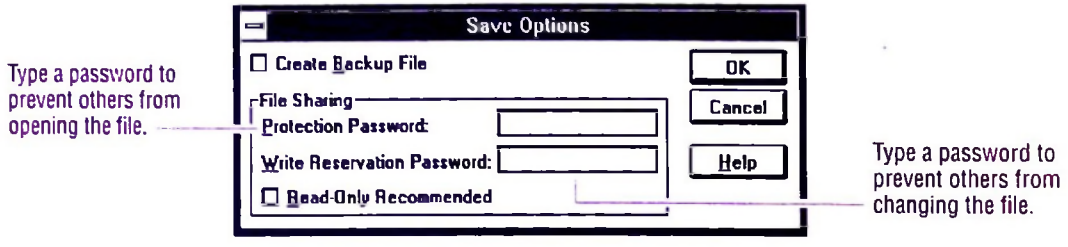
5. Choose OK.

   Microsoft Excel asks you to retype the passwords to confirm them.

6. Retype the passwords, and choose OK.
7. Choose OK to close the Save As dialog box.

   If you've already saved the document, Microsoft Excel asks you if you want to replace the existing document. Choose OK to replace the

document with the open document, or choose Cancel to cancel the save so that you can type a new name in the Save As dialog box.



Hint

You can also have Microsoft Excel recommend that users open a document as read-only. That way you can remind users that they should not be making changes. You can use this option instead of adding password protection, or to reinforce the password protections you've set.

To remove or change password protection

1. Open or switch to the document.
2. From the File menu, choose Save As.
3. If you want to save the document under a new name, type a name in the File Name box.
4. Choose Options.
5. To remove password protection, select the password in the Protection Password box or the Write Reservation Password box, then press (Del).
   –or–
   To change password protection, edit or type the password in the Protection Password box or the Write Reservation Password box.
6. Choose OK.
7. Choose OK to close the Save As dialog box.

   If you've already saved the document, Microsoft Excel asks you if you want to replace the existing document. Choose OK to replace the document with the open document, or choose Cancel to cancel the save so that you can type a new name in the Save As dialog box.

CAUTION

If you forget a password, you cannot open the document or remove protection from the document. It's a good idea to keep list of your passwords and their corresponding document names in a safe place.

3

Creating and Editing Worksheets

Creating and Editing Worksheets

In This Chapter

This chapter describes how to create and use worksheets, Microsoft Excel's basic document in which you can enter spreadsheet data or type text. In this chapter, you'll find the basics of creating and editing worksheets: entering data into worksheet cells and copying or moving it to different locations on the worksheet. You'll also find more advanced topics like using series and formulas to enter data.

This chapter shows you how to

- Create worksheets.
- Select cells and move around on worksheets.
- Create series.
- Move, copy, and delete cells and ranges.
- Sort worksheet data.
- Check spelling.
- Enter and use formulas.
- Switch from automatic to manual calculation.

Creating a Worksheet

In Microsoft Excel, you can enter numbers and write text on worksheets. A *worksheet* is a grid made up of horizontal *rows* and vertical *columns*. Rows are labeled from 1 to 16,384, and columns are labeled from A to IV. You write and store data in *cells*, the intersections of rows and columns. A selected single cell is called the *active cell*. A cell must be active before you can enter data into it or edit it in any way.

This section gives you step-by-step instructions for

- Creating a new worksheet.
- Selecting cells.
- Moving around on a worksheet.
- Entering data into cells.
- Creating data series.

New Worksheet button

To create a new worksheet

- Click the New Worksheet button on the Standard toolbar.

  New documents are named *Sheet1*, *Sheet2*, and so on.

To select a single cell

- Click the cell you want to select.
  -or-
  Press the arrow keys to move the wide border to the cell you want.

  A wide border marks the selected cell.

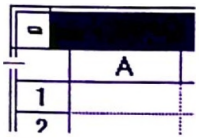
To enter data, see "To enter data in a cell" on page 3-7.

To select a range of cells

1. Point to the first cell you want to select.
2. Hold down the mouse button and drag through the remaining cells you want to select.
   -or-
   Hold down (Shift) and press arrow keys to extend the selection.

   Microsoft Excel selects all of the cells you move through, places a border around them, and shades them. The first cell you select is the active cell and isn't shaded like the others in the selection.

To select an entire row or column, click the row or column heading.



Select All button

To select the entire worksheet except embedded objects, click the Select All button to the left of the column headings.

To make a nonadjacent selection

Any selection of two or more cells or sections that aren't connected is called a *nonadjacent selection*. Nonadjacent selections function just like other selections—all of the cells are selected, but only one cell is the active cell.

1. Select the first cell or range.
2. Hold down (Ctrl) as you click each additional cell or drag through each additional range.

   All of the cells and ranges you choose are selected, even if they aren't currently on your screen.

To move within a worksheet

- Click the cell you want to move to.
  -or-
  Use the arrow keys to move up, down, right, or left.

To move in blocks of cells

A *block* of cells is a series of cells bounded by empty cells—horizontally or vertically.

- To move *to the edge of a block*, select any cell in the block, then double-click the border of the cell on the side to which you want to move (or press End and then an arrow key).
  -or-
- To move *to the next block*, select any cell on the edge of the block, then double-click the border of the cell on the side to which you want to move (or press End and then an arrow key).

To select a block of cells in the same row or column

1. Select a cell or range of cells within the block of cells.
2. Press Shift and double-click the border of the selection on the side to which you want to extend it.

   Microsoft Excel extends the selection to the edge of the block.

To find and select a cell or range

A *range* is a rectangular group of cells defined by two cells at opposite corners of the group.

1. From the Formula menu, choose Goto.
2. In the Reference box, type a cell reference (like F8 or J19) or range reference (like A8:A12 or B2:G7), or select a name from the list.
3. Choose OK to make the selection.

To select cells with specific contents

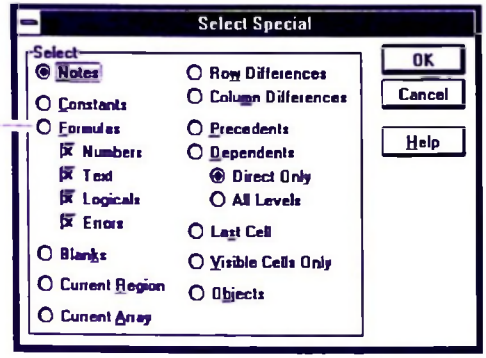
1. To search the entire worksheet, select a single cell.
   -or-
   To limit the search to a specific range, select the range.
2. From the Formula menu, choose Select Special.
3. Select the type of cell entries you want to select.

   For example, you can select numeric constants, or formulas containing errors. For more information, choose Help in the dialog box.

4. Choose OK.

   Microsoft Excel selects all of the cells in the search area that have the type of contents you selected in the dialog box.

Mark the type of cell entries you want to select, such as formulas containing errors or text.

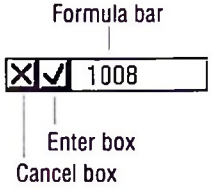


To move within a selection

When you've selected a range or any group of cells, only one of those cells is the active cell—that is, you can edit only one cell at a time.

- To move to the right or down within a selection, press (▶|). If you've made nonadjacent selections, continue pressing (▶|) to move from one selection to another, then back to the beginning again.
- To move up or left through a selection, press (Shift)+(|◀). This also moves between nonadjacent selections.

To enter data in a cell



Data is any information entered into a cell. Data can be text, like a label for a spreadsheet or entire sentences and paragraphs—or it can be a number, like a date, dollar amount, or time.

1. Select the cell into which you want to enter the data.
2. Type the data.

   The data you type appears in the formula bar and in the active cell.

3. To enter the data, click the enter box or press (Enter).
   -or-
   To clear the data and not enter it, click the cancel box or press (Esc).

   Text aligns to the left in each cell, and numbers align to the right.

To undo a cell entry immediately after you enter it, from the Edit menu choose Undo Entry.

Hint

If you want to enter a number as text, press (') before you type.

If you want to enter a calculation rather than a single number, see "To enter a formula" on page 3-23.

If you want to change the appearance of an entry, see "To change the appearance of data" on page 4-3.

Enter box

To enter data in a cell range

If you select a range of cells, you can easily move through the range as you enter data—you don't have to change the active cell for each entry.

1. Select the range and make the first cell active.
2. Type the data in the active cell.
3. Click the enter box or press Enter.
4. Repeat steps 2 and 3 for the rest of the cells in the range.

   The active cell moves to the right and down each time you enter data into a cell in the selected range.

To enter a date or time

1. Select the cell or cell range into which you want to enter a date or time or a group of dates and times.
2. Type the date or time the way you want it to look. Some examples of date and time formats are listed below.
3. Click the enter box or press Enter.
4. Repeat steps 2 and 3 for the rest of the cells in the range.

Dates and times are special numbers because Microsoft Excel reads them in different formats. When you type a date like 1/1/94 or a time like 6:25 PM, Microsoft Excel recognizes your data and formats the date or time the way you typed it. You can tell that the date or time is a number because it's right-aligned.

If you type	This is the format
3/4/94	m/d/yy
4-Mar-94	d-mmm-yy
4-Mar	d-mm
Mar-94	mmm-yy
8:45 PM	h:mm AM/PM
8:45:23 PM	h:mm:ss AM/PM
20:45	h:mm
20:45:23	h:mm:ss
3/4/94 20:45	m/d/yy h:mm

If you want to change how the date or time appears, see "To assign a number, date, or time format" on page 4-4.

To create a logical series of entries

1. Enter the first one or two values for the series, depending on the series.
2. Select the one or two cells.
3. Drag the square fill handle to the right or down to extend the selection.

   You can see the current value in the series in the reference area of the formula bar. This changes as you drag the fill handle.

4. Release the mouse button at the end of the series range you want to create.

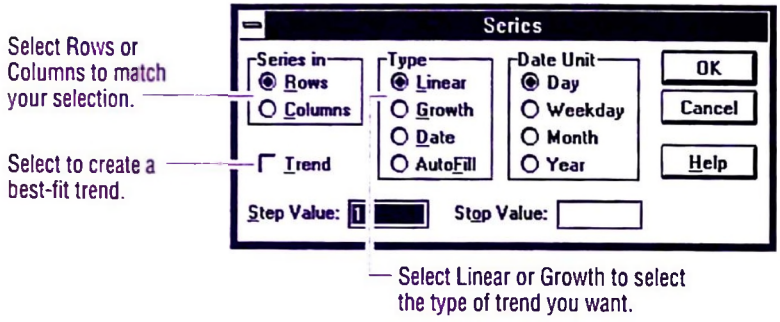
If you give the first one or two values in a series, the series continues for as many more values as you specify. Microsoft Excel creates series from numbers, dates, times, and even quarters, as illustrated below.

Initial selection	Extended series
1, 2	3, 4, 5
1, 3	5, 7, 9
100, 95	90, 85, 80
Jan	Feb, Mar, Apr
Mon	Tue, Wed, Thu
9:00	10:00, 11:00, 12:00
Qtr2	Qtr3, Qtr4, Qtr1

To adjust values to a smooth progression

You can use a range of values to find the smooth trend that best fits those values, then replace the values with the corresponding trend values. If you want to preserve the original values also, make a copy of the cells first. The trend is determined using the method of least squares.

1. Select the range of values on which you want to base the trend.
2. From the Data menu, choose Series.
   - If your selection is in a row, select Rows under Series In.
   - If your selection is in a column, select Columns under Series In.
3. Under Type, select a series type:
   - To create a linear trend, select Linear.
   - To create an exponential growth trend, select Growth.
4. Select the Trend check box.
5. Choose OK to create the trend.



To create a linear forecast

You can extend a range of values into adjacent cells based on the best linear trend for those values. The original values are preserved, and the new values are created.

1. Select the range of cells that you want to base the forecast on.
2. Drag the square fill handle to the right or down to extend the selection.
3. Release the mouse button at the end of the series range you want to create.

To undo a command or action

- From the Edit menu, choose Undo.

To repeat a command or action

- From the Edit menu, choose Repeat.

Editing a Worksheet

After you've entered data into worksheet cells, you can copy or move that data to other cells or to other worksheets. You can insert cells and ranges into worksheet ranges to expand spreadsheets without erasing any data. You can also sort spreadsheet entries alphabetically or numerically and check the spelling of entries.

This section gives you step-by-step instructions for

- Editing cell entries.
- Copying and moving data from one location to another.
- Moving and copying cells and ranges.
- Replacing and inseting cells and ranges.
- Deleting cells and ranges.
- Searching for text in cells.
- Sorting worksheet data.
- Checking spelling.

To edit a cell entry

If you want to replace a cell entry, you can simply select the cell and type the new data. However, if you want to edit the current data, use the following steps.

1. Select the cell that contains the data you want to change.
2. Click in the formula bar (or press F2).
3. Edit the cell entry as you like. See the guidelines below.
4. To enter the changes in the cell, click the enter box or press Enter.
   -or-
   To clear the changes you made, click the cancel box or press Esc.

To do this	Do this
Position the I insertion point in the formula bar	Point and click in the formula bar for editing.
Select characters in the formula bar	Drag through the characters you want to select for editing.
Select a word in the formula bar	Double-click the word you want.

Copy button

To copy or move characters from a cell entry

1. Select the cell that contains the data you want to copy or move.
2. In the formula bar, select the characters you want to copy or move.
3. To copy characters, click the Copy button on the Standard toolbar.
   -or-
   To move characters, from the Edit menu choose Cut.
4. If you want to paste the characters into a different cell, click the enter box or press (Enter)—then select the destination cell.
5. Move the insertion point in the formula bar to where you want to paste the characters.
6. From the Edit menu, choose Paste.
7. Click the enter box or press (Enter).

To copy a cell or range into adjacent cells

1. Select the cell or range you want to copy.
2. Hold down (Ctrl) as you drag the square fill handle into adjacent cells.
3. Release the mouse button at the end of the range into which you want to copy.

To replace cells by moving or copying

You can replace existing cells, rows, or columns with cells, rows, or columns you move or copy from another part of the worksheet.

1. Select the cells, rows, or columns you want to move or copy.
2. Position the mouse pointer over the border.

   The mouse pointer changes to an arrow.

3. To move the data, drag the selection to the paste area where you want to replace the existing data.
   -or-
   To copy the data, hold down (Ctrl) and drag the selection to the paste area where you want to replace the existing data.

If the paste area is located beyond the visible portion of the worksheet, drag the selection to the edge of the window to scroll through the worksheet.

4. Release the mouse button.

CAUTION

These steps replace the cells in the paste area with the moved or copied cells, deleting the cells that were in the paste area before the paste. If you unintentionally copy cells or accidentally paste over cells, immediately choose Undo from the Edit menu to reverse the last change you made.

To insert cells by moving or copying

You can insert new cells, rows, or columns between existing cells, rows, or columns by moving or copying cells from another part of the worksheet.

1. Select the cells, rows, or columns you want to move or copy.
2. To move the data, from the Edit menu choose Cut.
   -or-
   To copy the data, click the Copy button on the Standard toolbar.

   Microsoft Excel surrounds the selection with a moving border and puts the data on the Clipboard.
3. Select the cell or the upper-left cell in a range where you want to insert the data.
4. From the Edit menu, choose Insert Paste.
5. If Microsoft Excel displays a dialog box, choose which way you want to shift the existing cells:
   - To shift the cells in the paste area right, select Shift Cells Right.
   - To shift the cells in the paste area down, select Shift Cells Down.
6. Choose OK to insert the cells.
7. To cancel the moving border after copying, press Esc.

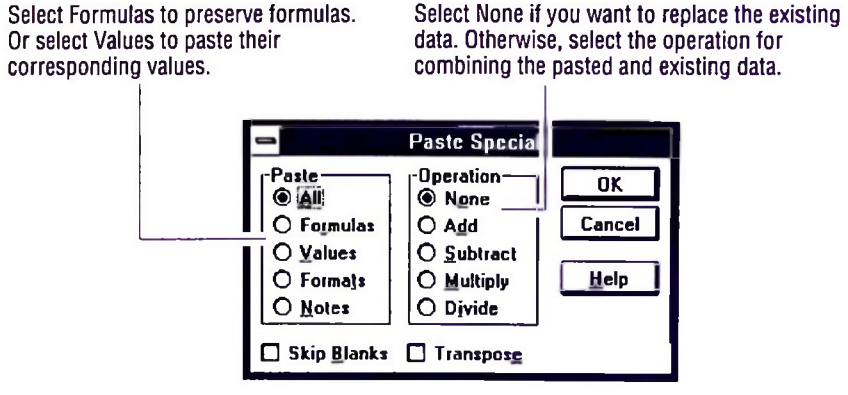
To cancel a moving border

Whenever you cut or copy cells, they're marked by a moving border.

- Press Esc.

To combine copied formulas or values with existing cells

1. Select the cells you want to copy.
2. Click the Copy button on the Standard toolbar.
3. Select the paste area—it must be the same size and shape as the copy area.
4. From the Edit menu, choose Paste Special.
5. Select the Paste option you want:
   - To combine the copied cells' formulas with the existing cells in the paste area, select Formulas.
   - To combine the copied cells' values with the existing cells, select Values.
6. Under Operation, select the operation you want to use for combining each copied cell and its corresponding paste area cell.
7. Choose OK.



To copy specific cell attributes

1. Select the cells you want to copy.
2. Click the Copy button on the Standard toolbar.
3. Select the paste area.
4. From the Edit menu, choose Paste Special.
5. Select the option under Paste you want:
   - To paste only formulas or values, choose Formulas or Values.
   - To paste only cell formats, choose Formats.
6. Choose OK.

See the previous illustration.

Fill handle

To insert rows, columns, or a range by dragging

You can insert rows, columns, or cells in a worksheet. Existing rows, columns, or cells move right or down as required.

1. To insert rows or columns, select the entire row or column after which you want to insert the new rows or columns—the selected row or column doesn't move when the insertion occurs.
   -or-
   To insert one or more cells, select the cell or range where you want to insert the new cells—the selected cells don't move when the insertion occurs.
2. Position the mouse pointer over the fill handle.
3. Press (Shift) and drag the fill handle down for rows or toward the right for columns and select the number of rows or columns you want to insert.

   For cells, drag the fill handle down or right for the number of cells you want to insert.
4. Release the mouse button.

To insert rows, columns, or a range using the menu

1. Select a range on your worksheet the same size as the range of blank cells you want to insert—the selected rows, columns, or cells move when the insertion occurs.

   For example, to insert two rows, select two complete rows—or select a range two cells high.

2. From the Edit menu, choose Insert.

   If you selected entire rows or columns, the insertion occurs immediately.

   If you selected a range of cells, continue with the remaining steps.

3. To insert a range of cells, select Shift Cells Right or Shift Cells Down to shift existing cells in the worksheet to accommodate the inserted cells.
   -or-
   To insert entire rows or columns, select Entire Row or Entire Column to shift the selected rows or columns down or to the right to open space for the new row or column.
4. Choose OK.

To clear cell contents, formats, and notes

1. Select the cells, rows, or columns you want to clear.
2. From the Edit menu, choose Clear.
3. To clear formulas, formats, or notes, choose the appropriate option.
   -or-
   To clear all three from the selected cells, select All.
4. Choose OK.

To clear a range of cells

1. Drag across the range you want to select, including the cells you want to clear.
2. Position the mouse pointer over the fill handle.
3. Drag the fill handle up or to the left and select the number of rows or columns you want to clear.
4. Release the mouse button.

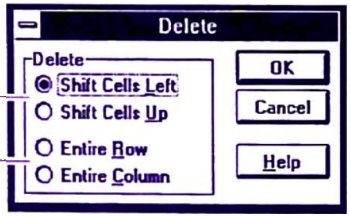
To delete cells, rows, or columns

1. Select the cell or cells you want to delete.
2. From the Edit menu, choose Delete (or press Del).
3. Select the appropriate option to close the space left by the deleted cells, as shown below.
4. Choose OK.

To simply clear cells without deleting them, see the previous topics.

Select Shift Cells Left or Shift Cells Up to fill the space left by the selected cells.

Select Entire Row or Entire Column to delete the row or column containing the selected cells.



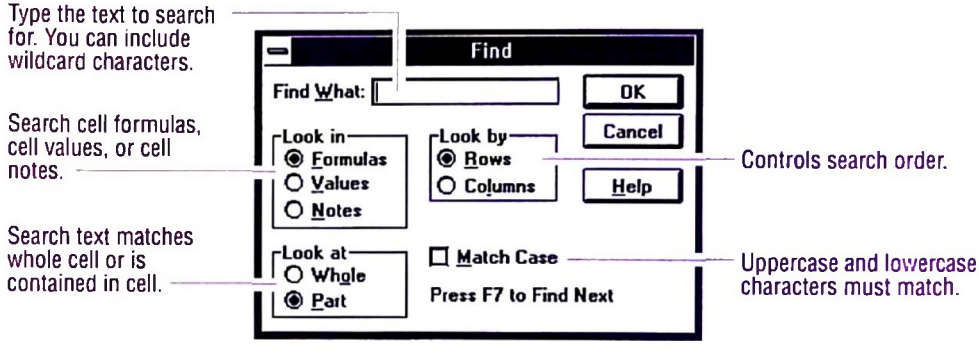
To search for text in cells

You can search the entire worksheet or just selected cells for specific data and jump to cells containing that data.

1. Select a single cell—the entire worksheet will be searched.
   -or-
   Select the range you want to search.
2. From the Formula menu, choose Find.
3. In the Find What box, type the text you want to find.

   You can include wildcard characters to match any string (*) or any single character (?). (To match * or ?, type ~* or ~?.)

4. To search forward from the active cell, choose OK.
   -or-
   To search backward, hold Shift and choose OK.
5. To find the next occurrence, press F7 or Shift+F7.



If you want to find and replace text, use the Formula menu Replace command.

To sort worksheet data

Ascending Sort button

Descending Sort button

You can sort a selected range of cells in a worksheet based on the contents of cells in a particular column. The selected parts of the rows are sorted according to the sort-key column.

1. If the Utility toolbar isn't displayed, click the right mouse button in the Standard toolbar and choose Utility.
2. Select the range you want to sort.
3. Place the active cell in the column you want to use as the sort key—you can press (▶|) or (Shift)+(|◀) to move the active cell.
4. To sort the rows in ascending order, click the Ascending Sort button.
   -or-
   To sort the rows in descending order, click the Descending Sort button.

For other sorting options, you can use the Data menu Sort command.

To check spelling

1. To check the entire worksheet including embedded charts and text boxes, select a single cell.
   -or-
   To check only part of the worksheet, select that range, embedded chart, or object.
2. From the Options menu, choose Spelling.

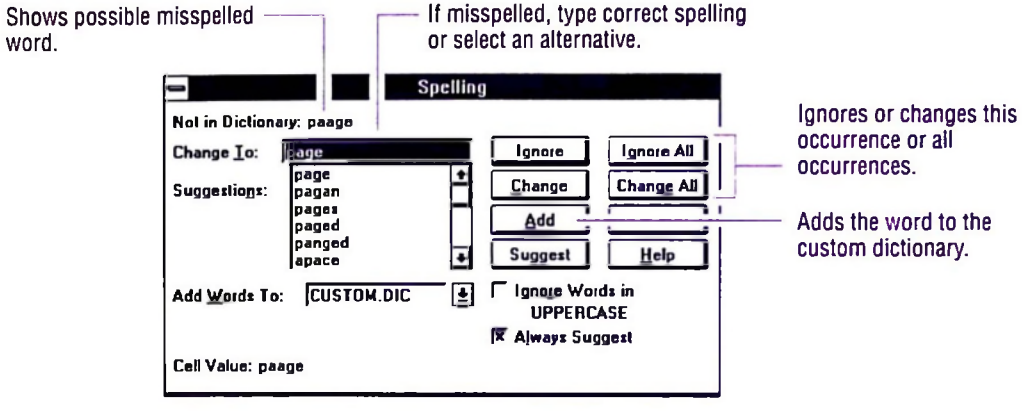
   Microsoft Excel begins checking the entire worksheet, the selected range, or the selected chart or object. When it finds a word that's not in the standard or custom dictionary, it displays the word in the Spelling dialog box.

3. Correct or skip the misspelled word:
   - To change this occurrence of the word to the suggested correction in the Change To box, choose Change.
   - To correct all instances of the same word found subsequently in your document to the suggested correction, choose Change All.
   - To specify a different correction, select a word from the Suggestions list and choose Change or Change All.

- To correct the word yourself, type your correction in the Change To box and choose Change or Change All.
- To skip only the current instance of the word, choose Ignore.
- To skip all instances of the word subsequently found in your document, choose Ignore All.
- To add the word to the custom dictionary, select a dictionary in the Add Words To box and choose Add.

If the selected cell was not at the beginning of your worksheet when you began the spell check, Microsoft Excel asks if you want to continue checking from the beginning.

4. Choose Yes to continue checking.
   -or-
   Choose No to stop.
5. When Microsoft Excel displays a message stating that it has checked all of the worksheet, range, or object you selected, choose OK to return to the worksheet.

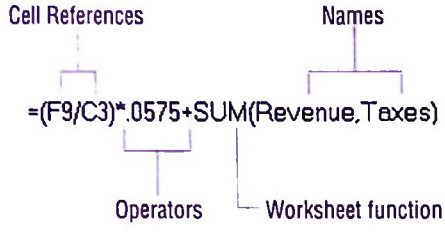


The English-international keyboard version of the OmniBook includes dictionary files for other languages. This lets you change the language used for checking spelling—see "Specifying International Settings" in chapter 9 of the OmniBook *Operating Guide*. (The English-only keyboard version of the OmniBook does not include alternative dictionary files.)

Working with Formulas

You can enter calculated values on your worksheets with formulas. A *formula* is one side of an equation whose result is shown in the cell.

A formula always begins with an equal sign (=) and can include any of the following elements: operators, cell references, values, worksheet functions, or names. The following illustration shows the types of data you can include in a formula.



You use *operators* to specify the operation (such as addition or subtraction) to perform in the formula. If you combine more than one operator in a formula, Microsoft Excel performs the operations in the order shown in the following table.

Operator	Description
:	Cell range
space	Intersection of cell ranges
,	Union of cell ranges
–	Negative (single operand)
%	Percent
^	Exponent
* and /	Multiplication and division
+ and –	Addition and subtraction
&	Text joining
=, <, >, <=, >=, and <>	Comparison

Operands are the values on either side of the operators in a formula. Operands for formulas should be single values, references to single cells, or names that refer to single cells or constant values.

Cell *references* identify cells or groups of cells on a worksheet. There are two types of references:

- *Relative references.* A relative reference is like giving someone directions that explain where to go from where that person started—"go north two blocks and east one block." References such as C4 and F7 are relative references.
- *Absolute references.* An absolute reference is like giving someone a street address—"11111 Euclid Ave." An absolute reference is designated by adding a dollar sign ($) before the column letter and the row number. References such as $D$9 and $G$8 are absolute references.

Microsoft Excel displays an error value in a cell when it cannot properly calculate the formula for that cell. The error values are #DIV/0!, #N/A, #NAME?, #NULL!, #NUM!, #REF!, and #VALUE!. For more information on troubleshooting worksheet formulas, see "Formulas" on page 14-5.

This section shows you how to create and use formulas in your worksheets and gives you instructions for

- Entering formulas.
- Entering cell references into formulas.
- Using worksheet functions in formulas.

To enter a formula

1. Select the cell into which you want to enter the formula.
2. Type an equal sign (=) to activate the formula bar.
3. Type the formula.

   -or-

   Create the formula by combining the typing and pasting techniques described in the following topics.

   If you make a mistake, edit the cell—see "To edit a cell entry" on page 3-12.
4. Click the enter box or press Enter.

   You can enter a formula into any cell, and the value calculated by the formula appears in the cell.

To enter cell references in a formula

You can use relative references (such as B7) and absolute references (such as $D$4) in a formula. You can even use mixed references, in which one element is relative and the other is absolute (such as $E2 or A$6). The types of references you use don't matter unless you copy the formula to another location—see the discussion below.

You can type both types of cell references into a cell. Or you can use the mouse to select the cells you want and enter them as relative references.

1. To insert a cell reference at the beginning of the formula, type an equal sign (=) to start the formula.
   -or-
   To insert the reference later in the formula, position the insertion point in the formula bar where you want the cell reference.
2. Click the cell or drag through the cell range on the worksheet.
3. To continue the formula, type the next operator or parenthesis and repeat step 2 for each reference you want to enter.
4. Click the enter box or press (Enter).

If you copy a formula containing a relative cell reference, the relative reference in the copy changes to maintain the same relation between the formula cell and the referenced cell—it points to a different cell. An absolute cell reference doesn't change—it points to the same cell.

For example, suppose cell C1 contains the formula `=$A$1+B1` and you copy it to cells C2 and E1. These are the results:

C1 contains `=$A$1+B1` (B1 is one cell to the left of C1)
C2 contains `=$A$1+B2` (B2 is one cell to the left of C2)
E1 contains `=$A$1+D1` (D1 is one cell to the left of E1)

Note that `$A$1` always refers to cell A1.

AutoSum button

To add the values of cells

You may find that you often have rows or columns of data that you need to add to give totals or subtotals. Using the AutoSum button on the toolbar, you can easily enter a formula that adds your data. It automatically inserts the SUM function in a cell.

1. Select the cell in which you want the total.
2. Click the AutoSum button on the Standard toolbar.
   -or-
   Press (Alt)+(=).

   A SUM formula with a proposed range is entered in the formula bar, and the range is marked with a moving outline in the worksheet.
3. If necessary, select a different summation range or edit the proposed range.
4. Click the enter box or press (Enter) to save the formula.

To paste a name into a formula

You can refer to cells, ranges, and formulas using names you've assigned. To assign a name, see "To name a cell, range, or formula" on page 5-3.

1. Position the insertion point in the formula bar where you want to paste the name.
2. From the Formula menu, choose Paste Name.
3. In the Paste Name box, select the name you want to paste.
4. Choose OK.

To paste a worksheet function into a formula

1. Select the cell into which you want to enter the formula.
2. Position the insertion point where you want to insert the function and type the preceding operator or left parenthesis.
3. From the Formula menu, choose Paste Function.
4. Select the function type for the function you want.

The All function type includes all worksheet functions.

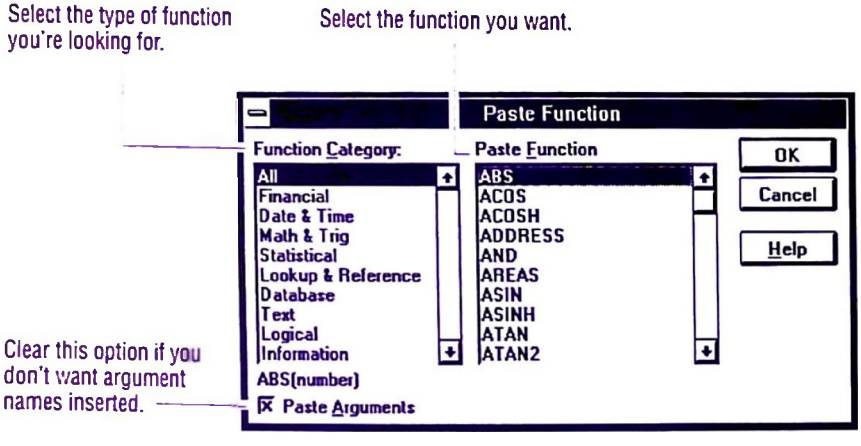
5. Select the worksheet function you want to paste.

   Microsoft Excel pastes placeholders to remind you which arguments are needed for the function. If you don't want placeholders, clear the Paste Arguments check box.

6. Choose OK.
7. Type or edit the arguments.

   You must replace placeholders with real arguments. If there is more than one argument, make sure they're separated with commas. If you want to omit an optional argument, leave the comma in its place.

8. When you finish editing the formula, click the enter box or press Enter.



See chapter 11 for descriptions of the worksheet functions.

Controlling Calculation

You can have Microsoft Excel calculate your formulas automatically, or you can specify manual calculation. With automatic calculation, Microsoft Excel updates formulas each time you change the values of the cells referred to by the formula. With manual calculation, you decide when you want to update the values appearing in formula cells. This section provides instructions to complete the following tasks:

- Switching between manual and automatic calculation.
- Calculating documents.
- Replacing formulas with their calculated values.

To switch between manual and automatic calculation

1. From the Options menu, choose Calculation.
2. Select the Calculation option you want.
3. Choose OK.

To calculate only the active worksheet

1. Select the worksheet you want to calculate so it's the active window.
2. From the Options menu, choose Calculation.
3. Choose Calc Document.

To calculate all open documents

- Press (F9).

To freeze the value in a cell

If you replace a formula with its calculated value, the cell changes to a constant value.

1. Select the cell containing the formula you want to replace.
2. Click the formula bar to switch to it (or press F2).
3. Press F9.
4. Click the enter box or press Enter.

To freeze the values in a range of cells

1. Select the cells containing the formulas you want to replace with their resulting values.
2. Click the Copy button on the Standard toolbar.
3. From the Edit menu, choose Paste Special.
4. Under Paste, select Values.
5. Choose OK to insert the values.

To freeze a portion of a formula

1. Select the cell containing the formula, or type the formula in the formula bar.
2. In the formula bar, select the portion of the formula you want to calculate and replace with the resulting value.
3. Press F9.
4. Click the enter box or press Enter.

4

Formatting Worksheets

Formatting Worksheets

In This Chapter

After creating a worksheet and filling it with your data, you may want to change its appearance before presenting it. This chapter shows you how to format your worksheets. It covers basic formatting tasks, like changing the appearance of data and aligning text and numbers. This chapter also covers more advanced tasks, like creating styles.

This chapter shows you how to

- Format worksheet data.
- Format a range automatically.
- Create and apply formatting styles.

Formatting a Worksheet

When you create a worksheet, you can change its appearance with the formatting tools. You can format data by making it bold or italic, or increasing or decreasing its size. You can right, left, or center align text or center it across columns. You can change the heights and widths of rows and columns to accommodate the data they hold, or you can hide a row or column entirely.

You can apply *styles* (combinations of formats) to a cell or range, or you can create your own styles to apply to cells. You can also add your own borders and shading to your worksheets, or you can automatically format them with one of several predesigned table formats.

This section gives you step-by-step instructions for

- Changing the appearance of text and numbers.
- Aligning data and centering text across columns.
- Adjusting rows and columns.

To change the appearance of data

You can use the Standard toolbar to format text and numbers—to make them appear bold, italic, and larger or smaller. When you apply formats to a cell, they apply to the entire contents of the cell—you can't format individual characters within the cell.

1. Select the cell or range of cells you want to format.
2. Click the appropriate buttons on the Standard toolbar to format the contents of the cells, as shown below.

To do this	Click
Make the selected data bold.	
Italicize the selected data.	
Increase the size.	
Decrease the size.	

For more font options, you can use the Format menu Font command.

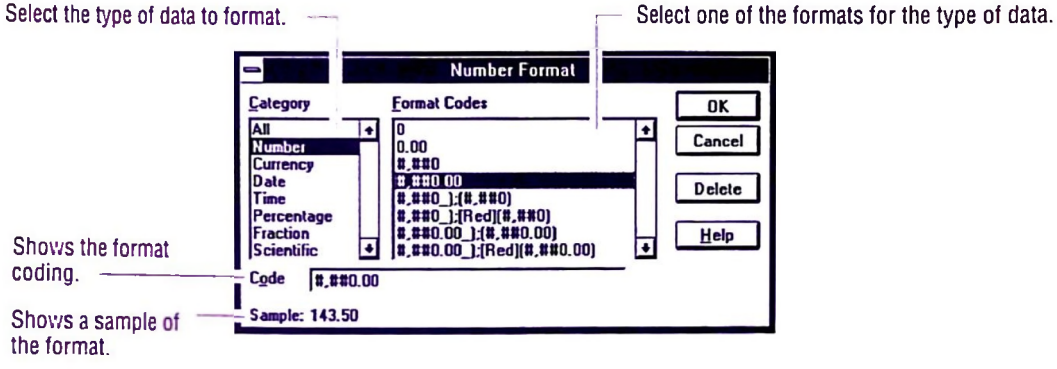
To assign a number, date, or time format

You can change the way a number, date, or time is displayed in a cell. However, the format doesn't change the underlying value of the cell—it affects only the appearance.

1. Select the cells you want to format.
2. From the Format menu, choose Number.
3. In the Category box, select the type of entry you want to format.
4. In the Format Codes box, select a number format. A list of any custom formats appears at the end of the list of built-in formats.

   If there is a value in the active cell when you select a format, the Sample line shows how the data looks with the selected format.

5. Choose OK.



To align text and numbers

1. Select the cell, range, text boxes, or worksheet you want to format.
2. Click the Align button on the Standard toolbar for the alignment you want (left, centered, or right).

For other alignment options, you can use the Format menu Alignment command

To justify text across a range of cells

You can arrange a block of text so it's distributed over a range of adjacent cells—yet store the text in only one cell, making it easy to edit and rearrange.

1. Select the cell containing the text *plus* the empty cells where you want to distribute the text.
2. From the Format menu, choose Justify.
   -or-
   Click the Justify Align button on the Formatting toolbar. (To display the Formatting toolbar, click the right mouse button on the Standard toolbar and choose Formatting.)

To center text across columns

1. Select the range containing the text you want to center—include the entire range in which you want the centered text to appear.
2. On the Standard toolbar, click the Center Across Columns button.

To format a cell entry or formula into separate lines

1. From the Format menu, choose Alignment.
2. Select the Wrap Text check box.

3. To start a new line in the formula bar, press Alt+Enter—this inserts a carriage return.

To format a cell entry or formula with tabs

- To insert a tab, press Ctrl+▶|.

To adjust the column width or row height

1. Select the row or column by clicking the row or column heading.
2. Adjust the row or column size:
   - To adjust column width, drag the line that's to the right of the column heading of the column you want to change.
   - To adjust row height, drag the line that's below the row heading of the row you want to change.

Hint

To adjust the column width to accommodate the longest cell entry in the column, double-click the line to the right of the column heading.

To adjust the row height to accommodate the tallest cell entry in the row, double-click the line below the row heading.

To reset column width or row height

You can reset a column or row to the default column width or row height.

1. Select the columns or rows you want to change.

   If you select a cell in an individually sized column or row, you can change the column or row to the standard column width or row height.

2. From the Format menu, choose Column Width or Row Height.
3. Select the Use Standard Width check box.
4. Choose OK.

To change the default column width or row height

1. From the Format menu, choose Column Width or Row Height.
2. Move to the Standard Width box, then type the column width or row height.
3. Choose OK.

   All of the columns or rows in your worksheet change to the size you entered except any columns or rows whose widths or heights you set manually.

To hide a row or column

1. Select the row or column you want to hide by clicking on the row or column heading.
2. Position the mouse pointer on the line below the row heading or to the right of the column heading you want to hide.
3. Drag the line into the row or column you want to hide until it's hidden.

To make a hidden row or column visible

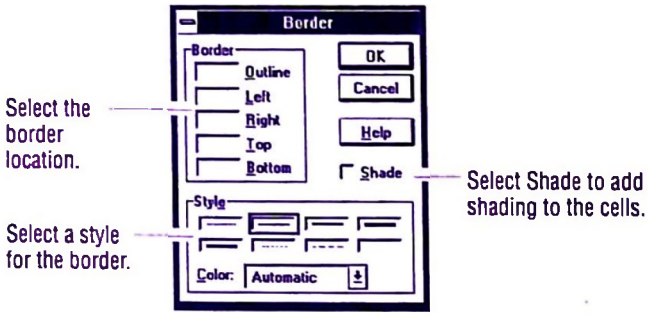
1. Position the mouse pointer just below the hidden row's row heading or just to the right of the hidden column's column heading.
2. Drag the hidden row down, or drag the hidden column to the right.

You can also use the Formula menu Goto command to select a cell in a hidden row or column, then use the Format menu Column Width or Row Height command to set a nonzero size.

To add borders or shading

1. Select the cell or cells you want to format.
2. From the Format menu, choose Border.

3. Set the options that you want:
   - To surround the selected cell or cells with a border, select Outline.
     -or-
     To add a border to one or more sides of the individual cells, select Left, Right, Top, or Bottom.
   - Select a style for each border.
   - Select Shade to add shading to the selected cell or cells.
4. Choose OK.



To shade cells with patterns

1. Select the cell or cells you want to format.
2. From the Format menu, choose Patterns.
3. In the Pattern, Foreground, and Background boxes, select the shading pattern and foreground and background shades you want:
   - If you want the standard window foreground and background shades, select Automatic.
   - If you don't want a pattern, select None in the Pattern box.

   In the Sample box, you see how the new formatting will look.
4. Choose OK.

To automatically format a range

Microsoft Excel has a series of formats that you can automatically apply to a range of cells that represents a table of data. How the format is applied depends on the data in your table.

1. Select the range you want to format.

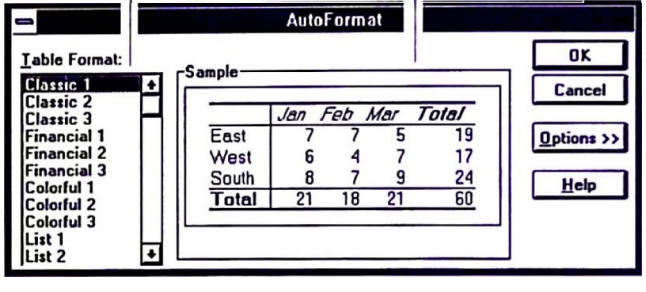
   You cannot apply a table format to a single cell nor to a nonadjacent selection.

2. From the Format menu, choose AutoFormat.
3. Select the type of format you want from the Table Format box.

   The Sample box displays an example of what the format looks like.

4. Choose OK to apply the formatting and close the dialog box.

Select one of the standard table formats.



Shows a sample of the selected format.

To undo all range formatting

- Immediately after you've finished formatting with the AutoFormat command, choose Undo AutoFormat from the Edit menu.

To refine an automatic format

1. Select the range you want to format.
2. From the Format menu, choose AutoFormat.
3. Choose Options to extend the dialog box and display a list of formats.
4. Adjust the table formatting:
   - To remove a type of formatting from the table, clear the corresponding option under Formats To Apply.
   - To include a type of formatting in the table, select the corresponding option under Formats To Apply.

   The sample is modified in the Sample box to reflect the changes.
5. Choose OK to apply the revised format and close the dialog box.

Oval button

To circle a cell or range

1. If the Drawing toolbar isn't displayed, click the right mouse button in the Standard toolbar and choose Drawing.
2. Click the Oval button.
3. Position the cross-hair pointer to where you want to start drawing—one corner of the outline box.
4. Drag until the oval is the size and shape you want.

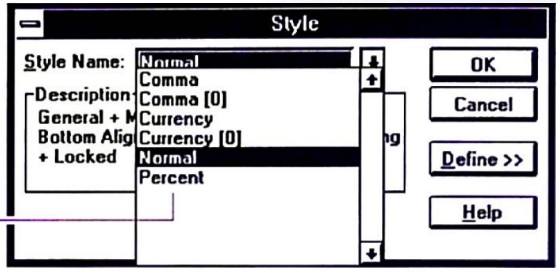
Using Styles for Consistent Formatting

A style defines how the contents of a cell appear—the number format, font type, alignment, borders, pattern, and protection. Each style specifies one or more of these attributes. Initially, cells have Normal style. You can change any cell to another style—and you can further modify a cell's appearance by specifying additional formatting.

To apply a style

1. Select the cells you want to format.
2. From the Format menu, choose Style.
3. In the Style Name box, select or type the name of the style you want to apply.

   If you select a style name, the Description box displays a description of the style.
4. Choose OK.



Select the style you want to apply. A style with (0) means no decimals are shown.

To create a style

1. Select a cell that has the combination of formats you want.
2. From the Format menu, choose Style.
3. In the Style Name box, type a name for the style.
4. Choose OK.

If you select multiple cells with conflicting formats, and create a style with the Style command, the style includes only the formats that the selected cells have in common.

To copy styles from another worksheet

1. Open both the worksheet that contains the styles you want to copy and the worksheet you want to copy the styles to.
2. Switch to the worksheet you want to copy the styles to.
3. From the Format menu, choose Style.
4. Choose Define.
5. Choose Merge. Microsoft Excel displays a list of the worksheets that are open in the workspace.
6. Select the name of the worksheet that contains the styles you want to copy.
7. Choose OK to copy the styles and style names from the worksheet you selected to the active worksheet.
8. Choose Close to close the Style dialog box.

To redefine a style

1. Select a cell that has been assigned the style you want to change.
2. Format the cell with the new formatting you want the style to have.
3. From the Format menu, choose Style.
4. Choose OK.

   Microsoft Excel asks if you want to redefine the style based on the current selection.

5. To redefine the existing style, choose Yes.
   -or-
   To reapply the old style and eliminate any new formatting you added to the cell, choose No.
   -or-
   To keep the new formatting without redefining the style, choose Cancel.

To delete a style

1. From the Format menu, choose Style.
2. In the Style Name box, select or type the style name you want to delete.
3. Choose Define.

   Microsoft Excel expands the Style dialog box.

4. Choose Delete.

   Microsoft Excel deletes the style name, and reverts cells formatted with the deleted style back to the Normal style. The Style dialog box remains open so that you can delete other styles.

5. Choose Close to close the dialog box.

5

Organizing Worksheets

Organizing Worksheets

In This Chapter

This chapter shows you how you can organize your worksheets. It covers organizing tasks such as using names to identify parts of a worksheet, using outlines to selectively disclose details of worksheet data, and using templates for duplicating worksheet structures.

This chapter shows you how to

- Name cells and ranges.
- Outline a worksheet.
- Use document templates.

Documenting a Worksheet

You can use *names* as easy-to-remember identifiers to refer to a cell, a group of cells, or a formula. You can use these names throughout the worksheet and in formulas. For more information about creating formulas, see "Working with Formulas" on page 3-22. You can also use text boxes to annotate a worksheet.

This section gives you step-by-step instructions for

- Naming cells, ranges, and formulas.
- Adding, editing, and deleting text boxes.

To name a cell, range, or formula

1. Select the cell, cell range, or nonadjacent selections you want to name.

   If you're naming a formula, you can select any cell.

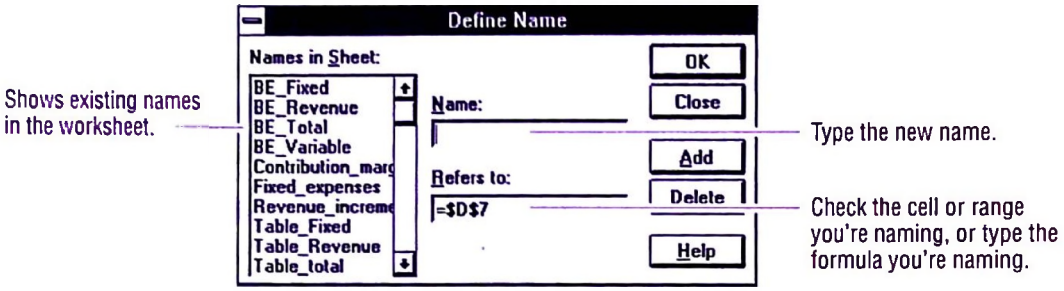
2. From the Formula menu, choose Define Name.

   Microsoft Excel proposes the absolute reference of the current selection as the area to be named.

3. In the Name box, type a name.
4. If the Refers To box doesn't contain the correct reference, move to the Refers To box and select the cell or range on the worksheet, or type a cell reference (starting with =).

   If you're naming a formula, type the formula in the Refers To box (starting with =).

5. If you want to continue adding names to the worksheet, choose Add and repeat steps 3 and 4.
6. When you're finished adding names to the worksheet, choose OK.



To edit a name's reference or formula

1. From the Formula menu, choose Define Name.
2. In the Names In Sheet box, select the name whose reference or formula you want to edit.
3. In the Refers To box, type a new reference or formula, or edit the current reference or formula.
4. Choose OK.

To paste a name into a formula

1. Select the cell in which you want to use the name.
2. In the formula bar, position the insertion point where you want to paste the name.

   For more information about entering formulas, see "Working with Formulas" on page 3-22.

3. From the Formula menu, choose Paste Name.
4. Select the name you want to paste from the list.
5. Choose OK.

To delete a name no longer in use

1. Form the Formula menu, choose Define Name.
2. In the Names In Sheet box, select the name you want to delete.
3. Choose Delete.
4. To close the dialog box, choose Close.

Text Box button

To add a text box

You can use text boxes to add comments next to parts of your worksheets—and you can move and size text boxes as independent graphic objects. If you want, you can add an arrow that points from a text box to an individual cell.

1. If the Drawing toolbar isn't displayed, click the right mouse button in the Standard toolbar and choose Drawing.
2. Click the Text Box button on the Drawing toolbar.
3. Position the cross-hair pointer where you want one corner of the box to be located.
4. Drag until the box is the size and shape you want.
5. Type the text you want in the box.

   Text automatically wraps to fit the width of the box—and you can start a new line at any time by pressing Enter.

6. When you're finished typing, click outside the text box or press Esc.

To edit the text in a text box

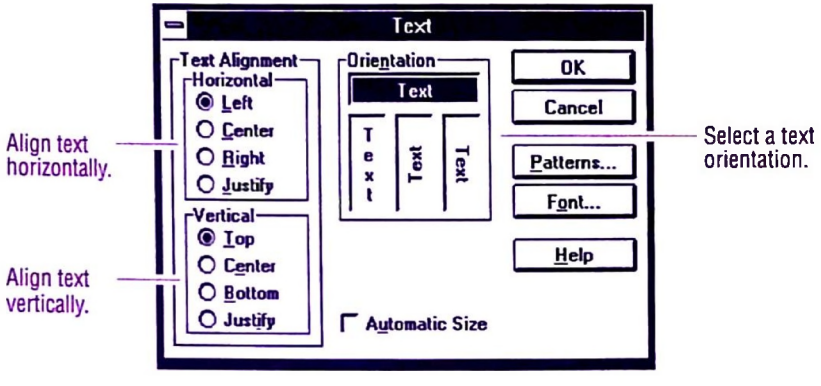
1. Click the text box to select it.
2. Position the insertion point by clicking the mouse or pressing F2, then edit the text using the same techniques that you use for editing cell contents in the formula bar. (If you don't position the insertion point, all the text is replaced when you start typing.) For more information, see "To edit a cell entry" on page 3-12.

To delete a text box

1. Click the text box or its border to select it.
2. From the Edit menu, choose Clear.

To format the alignment of text-box text

1. Click the text box to select it.
2. From the Format menu, choose Text.
3. Select the Alignment and Orientation options you want.
4. Choose OK.



Outlining a Worksheet

You can give your worksheet an outline structure that can include up to eight levels of information. You can do this to indicate a hierarchical data structure—then selectively hide or expose different levels of detail. If you hide part of your structure, you can select the visible cells as if they were a single range of cells.

This section gives you step-by-step instructions for

- Setting up an outline in a worksheet.
- Showing and hiding levels of detail.
- Clearing an outline from a worksheet.

To outline your worksheet data

You can create an outline from an existing worksheet using the Outline command. It looks at formulas and cell references to determine dependencies in the worksheet, then marks summary information as higher outline levels, and detail information as lower levels. For example, in many worksheets, rows or columns of values are combined into summary values at the right of the rows or bottom of the columns.

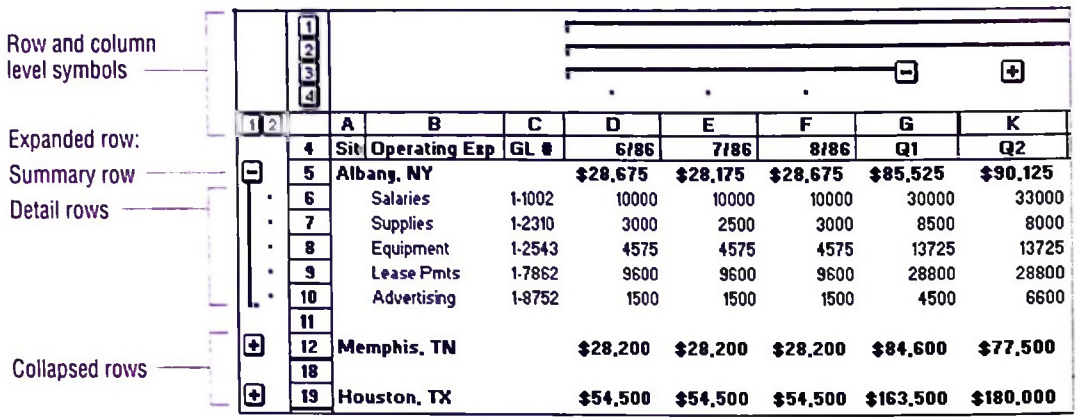
1. Select the range you want to outline.

   To outline the entire worksheet, select a single cell.

2. From the Formula menu, choose Outline.

   For a description of the dialog box options, choose Help in the dialog box.

3. Choose Create to create the outline structure.



	A	B	C	D	E	F	G	K
4	Sit	Operating Exp	GL #	6/86	7/86	8/86	Q1	Q2
5	**Albany, NY**			**$28,675**	**$28,175**	**$28,675**	**$85,525**	**$90,125**
6		Salaries	1-1002	10000	10000	10000	30000	33000
7		Supplies	1-2310	3000	2500	3000	8500	8000
8		Equipment	1-2543	4575	4575	4575	13725	13725
9		Lease Pmts	1-7862	9600	9600	9600	28800	28800
10		Advertising	1-8752	1500	1500	1500	4500	6600
11								
12	**Memphis, TN**			**$28,200**	**$28,200**	**$28,200**	**$84,600**	**$77,500**
18								
19	**Houston, TX**			**$54,500**	**$54,500**	**$54,500**	**$163,500**	**$180,000**

You can also create an outline by manually demoting detail rows or columns—see the next topic.

To promote or demote a row or column

You can manually change the outline level of a row or column.

1. If the Utility toolbar isn't displayed, click the right mouse button in the Standard toolbar and choose Utility.
2. Select the entire row or column you want to change to a different level in the outline.
3. To lower its importance one level, click the Demote button on the Utility toolbar.
   -or-
   To raise its importance one level, click the Promote button on the Utility toolbar.

   If you did not select an entire row or column, you're asked whether you want to change rows or columns. Select Rows or Columns, and choose OK.

The higher-level rows or columns are normally assumed to be below or to the right of the detail rows or columns. You can change this assumption by

choosing the Formula menu Outline command and changing the Direction options.

Show Outline Symbols button

To display or hide the outline symbols

1. If the Utility toolbar isn't displayed, click the right mouse button in the Standard toolbar and choose Utility.
2. Click the Show Outline Symbols button on the Utility toolbar.

Collapse symbol

Expand symbol

To collapse or expand a level

- To hide the details for one section of an outline, click the collapse symbol or the level bar for that section.

  –or–
- To show the details for a collapsed section, click the expand symbol for that section.

To display specific levels of an outline

- Click the row or column level symbol (for example, 1 or 2) near the top-left corner of the window—this specifies the lowest level you want to display.

  All rows or columns below that level are collapsed.

To select a section of an outline

You can select a row or column and all of its subordinate rows or columns. This makes it easy to move blocks of data.

- Hold down Shift and click the collapse or expand symbol or the level bar for the row or column.

Select Visible Cells button

To select and chart or copy visible cells in an outline

1. If the Utility toolbar isn't displayed, click the right mouse button in the Standard toolbar and choose Utility.
2. Select the cells in your outline that you want to work with.
3. Click the Select Visible Cells button on the Utility toolbar.
4. Chart or copy the cells.

To clear an outline from a worksheet

1. If the Utility toolbar isn't displayed, click the right mouse button in the Standard toolbar and choose Utility.
2. Select all the rows included in the outline.
3. Click the Promote button on the Utility toolbar until there are no more subordinate levels.
4. Select all the columns included in the outline.
5. Click the Promote button on the Utility toolbar until there are no more subordinate levels.

   The outline symbols disappear and your worksheet no longer contains an outline.

Creating and Using a Document Template

A *template* is a document you create as the basic pattern for other similar documents. For example, you can create an expense report, save it as a template, and use the template to fill in the data that varies every month, quarter, or year. Templates create standard documents by sharing information, graphics, or formatting. This section gives you instructions for

- Creating templates.
- Using templates.
- Editing templates.

To create a template

1. Create a worksheet or chart with all the styles, formats, generic text, and macros you want in your template—or open a document that you want to use as a template.
2. From the File menu, choose Save As.
3. Type the name you want for the template.

   If you don't type an extension, Microsoft Excel uses the extension .XLT.

4. In the Save File As Type box, select Template.
5. Choose OK.

To use a template

1. Click the Open File button on the Standard toolbar.
2. Select the template on which you want to base a new document.
3. Choose OK.

   Microsoft Excel opens a worksheet based on the template for you to use and gives it a temporary name. When you save the file, Microsoft Excel displays the Save As dialog box so you can name it.

Styles and formats used in the template carry over to the new worksheet and any charts within the worksheet. A chart based on a data series inside a template doesn't use the template's series for its data, however. The chart changes as the data series changes in the new document.

To open and edit a template

1. Click the Open File button on the Standard toolbar.
2. Select the template you want to edit.
3. Hold down (Shift) and choose OK.
4. Edit the template.
5. Click the Save File button on the Standard toolbar to save the changes to your template.

6

Viewing and Analyzing Worksheet Data

Viewing and Analyzing Worksheet Data

In This Chapter

To interpret your worksheet data, you can change the way it appears on the screen—you can split the window or create multiple windows to better view the information.

You can also analyze your worksheet data using Microsoft Excel features. For example, you solve for the value of a cell that produces a given formula result—or you can store in a worksheet several sets of results, called *scenarios*.

This chapter shows you how to

- Change the document display.
- Change your view of a document.
- Solve a formula to get a cell value.
- Create, view, and summarize scenarios for a worksheet.

Changing Your View of a Worksheet

You can change the way documents appear on the screen. For a larger worksheet, you can step back and view a larger area. You can view two parts of a worksheet in the same window. You can even save different views and switch between them quickly.

This section shows how to

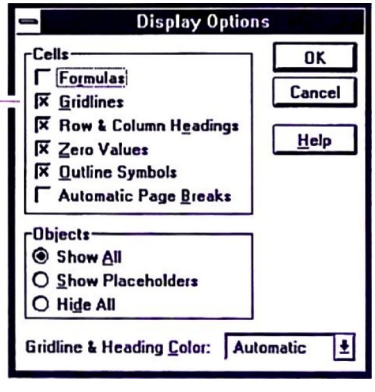
- Change the worksheet elements that are displayed.
- Use one or more worksheet windows.
- Split a window into panes.
- Freeze column and row titles so they don't scroll.
- Zoom in or out on a worksheet.
- Save and display different views of a worksheet.

To change how a worksheet is displayed

1. From the Options menu, choose Display.
2. Select the options for the items you want displayed.
3. Choose OK to change the appearance of the active worksheet.

For example, clear the Row & Column Headings option to eliminate the headings along the top and side of the worksheet. Clear the Gridlines option to eliminate the dotted cell dividers. Select the Formulas option to display cell formulas instead of values.

Select the elements you want displayed.



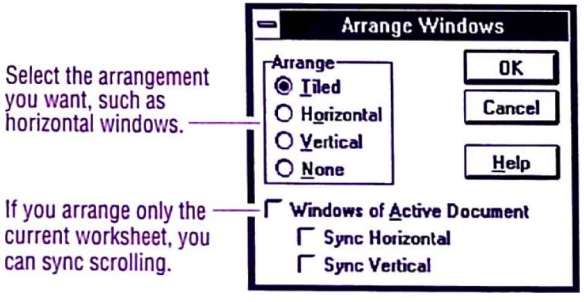
To open a new window into a worksheet

1. Switch to the worksheet you want displayed in multiple windows.
2. From the Window menu, choose New Window.

   Microsoft Excel creates another window containing the same worksheet.

To arrange open windows in the workspace

1. From the Window menu, choose Arrange.
2. Under Arrange, select the orientation you want.
3. Choose OK.



To split a window into panes

By splitting a window into two panes, you can view different parts of a large worksheet simultaneously.

1. Switch to the worksheet window you want to split.
2. From the Window menu, choose Split.

   The window splits above and to the left of the active cell. The active cell appears in the active pane.

3. To adjust the split panes, click the vertical or horizontal split line and drag in the direction you want.

To remove split panes from a window

1. Switch to the worksheet window from which you want to remove the split.
2. From the Window menu, choose Remove Split.

To freeze both column and row titles and automatically split panes

By freezing the titles, you keep the titles visible and prevent data cells from scrolling into the title area.

1. Select the cell below the title row and to the right of the title column—the upper-left cell in the area you don't want frozen.
2. From the Window menu, choose Freeze Panes.

   Microsoft Excel automatically splits the window and freezes the titles.

To unfreeze titles

1. Select the window you want to unfreeze.
2. From the Window menu, choose Unfreeze Panes.

   If you split the window before the choosing the Freeze Panes command, the split panes return. If you split the windows with the Freeze Panes command, all panes are removed.

Zoom In button

Zoom Out button

To zoom in or out on a worksheet

1. If the Utility toolbar isn't displayed, click the right mouse button in the Standard toolbar and choose Utility.
2. Zoom in or out on the worksheet:
   - Click the Zoom In button to display the document at the next higher magnification.
   - Click the Zoom Out button to display the document at the next lower magnification.

To save a view of a worksheet

If you have a particular view of a worksheet that you'd like to recreate in the future, you can save the view. The settings you specify when you save a view are saved too. When you later display the view, those settings will override the current settings in the worksheet.

1. Set up the worksheet for the view you want to save.
2. From the Windows menu, choose View.
3. Choose Add.
4. In the Name box, type a name for the current view.
5. Under View Includes, select the settings you want to save with the view.
6. Choose OK.

To display a saved view, see the next topic.

To delete a saved view in the View dialog box, select the name of the view and choose Delete.

To display a saved view

When you display a view that you've saved, the settings you saved with the view replace the current display settings.

1. Switch to the worksheet you want to view.
2. From the Windows menu, choose View.
3. Choose Show to display the view.

Analyzing Worksheet Data

You can use these tools for analyzing worksheet data:

- *Goal seeking.* If a cell contains a formula, and you want it to calculate to a certain value, you can solve the formula—that is, you can find the value for another cell that gives the result you want for the formula.
- *Scenario Manager.* A simple worksheet often contains one set of data—representing one combination of related values. However, you may be interested in seeing the results for a different set of values—seeing the same worksheet for a different *scenario*. For example, you can easily show a break-even worksheet for best-case sales figures—and then show the same worksheet for worst-case figures. You can use the Scenario Manager to save multiple scenarios in a worksheet and switch among them at any time.

This section shows how to

- ▸ Solve a formula to get a cell value.
- ▸ Create and view scenarios for a worksheet.
- ▸ Summarize the results of several scenarios.

To solve for a cell value in a formula

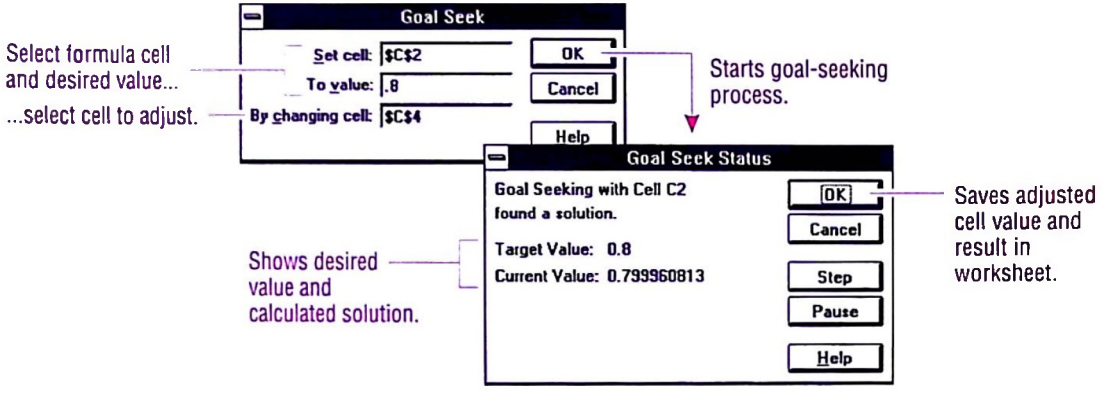
In many situations, the value in a cell depends on other values in the worksheet. In such cases, the cell typically contains a formula that calculates a result based on values in other cells. However, if you want the result to have a certain value, you must adjust the value in another cell so that the formula gives the result you want. You *could* do this by trying different values in one of the other cells and seeing if the result is close to what you want. But it's usually faster and easier to use the goal-seeking capability of Microsoft Excel—it automatically adjusts another cell to give the result you specify for the formula.

1. Make sure a number is entered in the cell you plan to adjust.
2. From the Formula menu, choose Goal Seek.
3. In the Set Cell box, select the cell containing the formula you want to solve. You can type the reference or select the cell on the worksheet.
4. In the To Value box, type the resulting value you want.

5. In the By Changing Cell box, type or select the cell you want to adjust—the cell must contain a value, and the formula must depend on that cell, directly or indirectly.
6. Choose OK to start the goal seeking.

   If you want to pause the process, choose Pause—choose Continue to resume, or choose Step to go one step at a time.

   The result is displayed on the worksheet if a solution is found—otherwise, a message is displayed.
7. If a solution is found, choose OK to keep the new values on the worksheet—or choose Cancel to restore the original values.



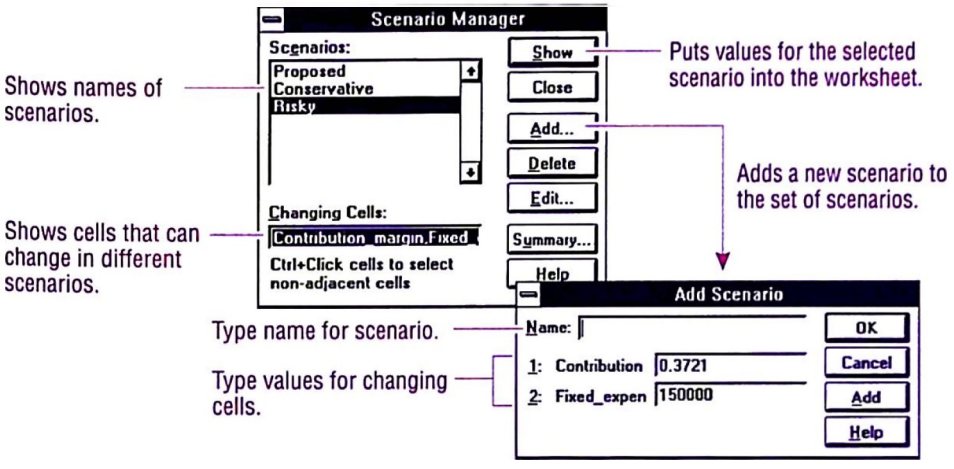
To create a set of scenarios

All scenarios for a worksheet must be based on the same set of input cells that you'll vary. Of course, the values in the input cells will probably affect values in other cells. Only one scenario is displayed at a time—but all of the combinations are saved with the worksheet.

1. Switch to the worksheet in which you want to create scenarios.
2. From the Formula menu, choose Scenario Manager.
3. In the Changing Cells box, select the cells you want to change for this or any other scenarios for this worksheet. To specify multiple cells, separate

them by commas. You can type the references or select the cells on the worksheet.

4. Choose Add.
5. In the Name box, type a name for the scenario.
6. Set each input cell to the value you want for this scenario.
7. To save this scenario and create another, choose Add and repeat the previous two steps.
   –or–
   To save this scenario and close the dialog box, choose OK.
8. Choose Close.



If you use the Scenario Manager dialog box to change the list of input cells, Microsoft Excel asks you to confirm the change. A new cell is automatically added to all scenarios using its current value, and a deleted cell is removed from all scenarios.

To view a scenario

1. Switch to the worksheet in which you want to view a scenario.
2. From the Formula menu, choose Scenario Manager.
3. In the Scenarios box, select the scenario you want to view.

4. Choose Show.

   The input cells take the values stored in the scenario, and the worksheet recalculates to reflect the new values.

5. Choose Close.

To change the input values for a scenario

1. Switch to the worksheet in which you want to change a scenario.
2. From the Formula menu, choose Scenario Manager.
3. In the Scenarios box, select the scenario you want to change.
4. Choose Edit.
5. Change the input cell values as you want.
6. Choose OK to save the changes.
7. Choose Close.

To create a summary of scenarios

You can create a table that summarizes key values for all scenarios. The key values are all of the input cells and any result cells you specify. If you name the input and result cells before creating the summary, the names are used in the summary instead of cell references—see "To name a cell, range, or formula" on page 5-3.

1. Switch to the worksheet in which you want to summarize scenarios.
2. From the Formula menu, choose Scenario Manager.
3. Choose Summary.
4. In the Result Cells box, select the cells whose values you want to include in the summary. To specify multiple cells, separate them by commas. You can type the references or select the cells on the worksheet.
5. Choose OK to create the summary table in a separate worksheet.

7

Working with Databases

Working with Databases

In This Chapter

If you work with complex data or large amounts of data, putting your information into a database can make it easier to manage your records. This chapter describes how to transform your worksheet data into a database. It introduces the basics of creating and using databases, including how to sort and expand your databases. This chapter also covers more advanced topics such as how to extract a subset of records that meet your criteria.

This chapter shows you how to

- Store records in a Microsoft Excel database.
- Search the database for specific information.
- Sort the database in any order you want.
- Save time by extracting subsets of the database.

Creating and Using a Database

A *database* is a tool for organizing, managing, and retrieving information. In Microsoft Excel, you can create a database on a worksheet. By using your worksheet data as a database, you can easily store and manipulate large amounts of data.

This section describes the tasks you need to organize and manage databases, including the following:

- Designing a database.
- Creating a database.
- Adding and editing records.
- Searching for and deleting records.
- Sorting a database.

To design a database

Before you create a new database, write down the following information:

1. List the types of information you want to store—for example, invoice number, date, company, amount due—whatever you need to keep track of.

   Each type you've listed will be a *field* in your new database.

2. Choose a name for each field in your database—see the following guidelines.

   Field names must be text. If field names contain numbers, the numbers must be formatted as text. Do not use numbers, logical values, error values, blank cells, or formulas as field names. Otherwise, the database commands will not work properly.

   The length of a field name can be a maximum of 255 characters. However, it's best to keep field names brief, so that column widths are narrower and you can view more of the database in one window.

To create a database

To create a database, first enter your data into a worksheet.

1. In the row where you want the database to start, enter the field names.

   The first row of the database *must* contain the field names. You may want to leave several blank rows above or to the left of the database for entering criteria, tables, or other formulas.

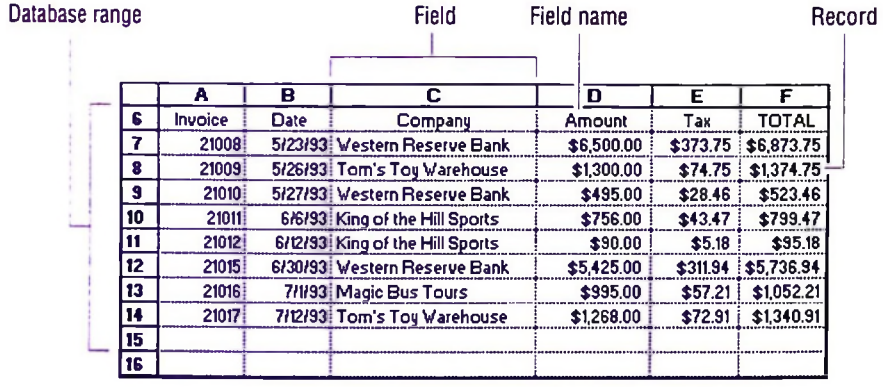
2. Enter the records in the rows below the field names.

   You can use either uppercase or lowercase letters. Microsoft Excel ignores capitalization when searching or sorting a database.

3. Select all the cells in the database area, including the field names and an extra blank row below the last record in the database for future expansion.

4. From the Data menu, choose Set Database.

   Microsoft Excel names the selected range of cells *Database*. A *record* is a single row in a database. Each column in a database is a separate *field*, and the first row of the database contains the *field names*.



	A	B	C	D	E	F
6	Invoice	Date	Company	Amount	Tax	TOTAL
7	21008	5/23/93	Western Reserve Bank	$6,500.00	$373.75	$6,873.75
8	21009	5/26/93	Tom's Toy Warehouse	$1,300.00	$74.75	$1,374.75
9	21010	5/27/93	Western Reserve Bank	$495.00	$28.46	$523.46
10	21011	6/6/93	King of the Hill Sports	$756.00	$43.47	$799.47
11	21012	6/12/93	King of the Hill Sports	$90.00	$5.18	$95.18
12	21015	6/30/93	Western Reserve Bank	$5,425.00	$311.94	$5,736.94
13	21016	7/1/93	Magic Bus Tours	$995.00	$57.21	$1,052.21
14	21017	7/12/93	Tom's Toy Warehouse	$1,268.00	$72.91	$1,340.91
15						
16						

To add records

The easiest way to add records in your database is to use a *data form*. A data form is a dialog box that provides a simple way to view, change, add, and delete records in your database, or to find specific records based on criteria you specify.

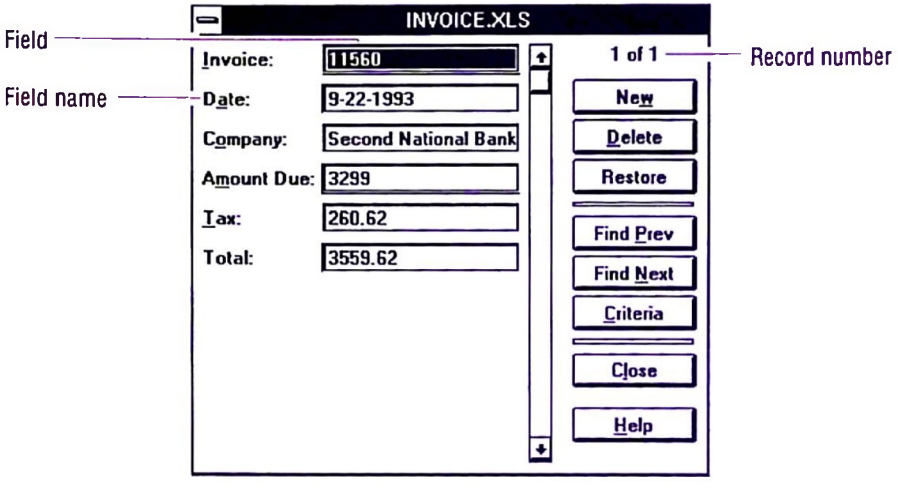
1. Switch to the worksheet containing the database.
2. From the Data menu, choose Form.
3. Choose New.

   Microsoft Excel scrolls to the first blank record and the record number changes to `New Record`.

4. Fill in the fields for your new record—pressing (→) to move from field to field.

   Every record must have the same fields, but you don't have to enter data in each field. Be careful not to insert extra spaces at the beginning or end of each entry in a field; extra spaces are *not* ignored by database operations, such as searching.

5. When finished filling in the data fields, press (Enter).
6. Choose Close when you finish adding records.



To edit records

1. Switch to the worksheet containing the database.
2. From the Data menu, choose Form.
3. Scroll to and edit each record you want to change—pressing ⇥ to move from field to field.
4. Choose Close when you finish working in the data form.

To cancel changes to a record

If you make changes to the fields in a record and then decide you want to cancel those changes, you can restore the record to its original contents—as long as you do so before moving to a different record.

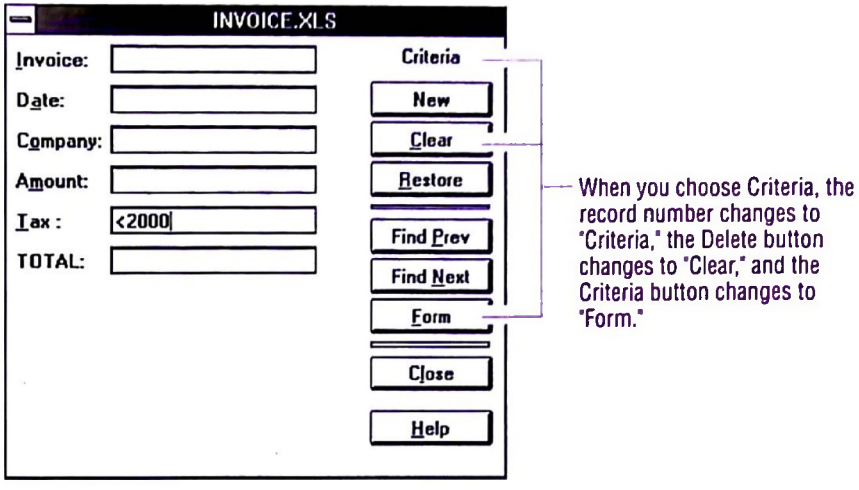
- Before you scroll or make any further changes, choose Restore.

To find records

You can define criteria and use the Find Next and Find Prev buttons to find records matching the criteria you specify. *Criteria* are the instructions Microsoft Excel uses to match these records. You can also use criteria to delete records from your database.

1. Switch to the worksheet containing the database.
2. From the Data menu, choose Form.
3. Choose Criteria.
4. In the boxes next to the field names, type the criteria you want to use when searching the database.

   To return to the data form without searching the database, choose Form.
5. To search forward through the database and display the first record that matches the criteria, choose Find Next.
6. When you finish, choose Close to close the data form.



To delete records

CAUTION

You *cannot* recover deleted database data with the Restore button or the Undo command on the Edit menu. Before choosing OK, make sure you want to delete all the information in the record.

1. Switch to the worksheet containing the database.
2. From the Data menu, choose Form.
3. Display the record you want to delete.
4. Choose Delete—then choose OK to confirm.

   Remaining records in the database shift up to fill any gaps, but the rest of the worksheet is not affected. Any cells below the database do not shift up as they do when you use the Delete on the Edit menu.

To sort a database

Sort descending

Sort ascending

1. If the Utility toolbar isn't displayed, click the right mouse button in the Standard toolbar and choose Utility.
2. Select the range you want to sort—normally all columns of the database, and often all rows.

CAUTION

Be careful not to include the field names as part of the selection to be sorted. The field names for a database must always remain in the top row of the database. Also, be sure to save your worksheet before you sort.

3. Press (▶|) or (Shift)+(|◀) to place the active cell in the column you want to use as the sort key—the basis for sorting.
4. To sort the rows in ascending order, click the Sort Ascending button.
   -or-
   To sort the rows in descending order, click the Sort Descending button.

   Microsoft Excel sorts the rows based on the column that contains the active cell.

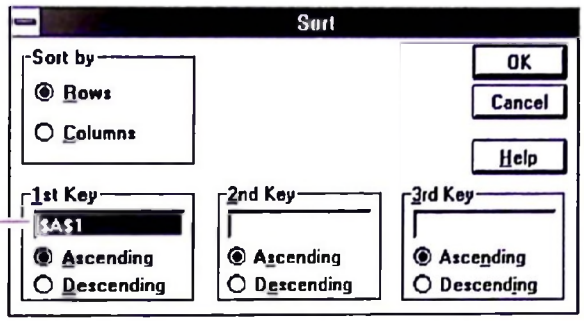
To sort a database by more than one sort key

You can specify up to three sort keys to sort a database.

1. Select the range you want to sort.
2. From the Data menu, choose Sort.
3. Under Sort By, select Rows to sort across or Columns to sort up and down.
4. In the 1st Key box, type the reference of your first sort key.

   You can refer to any cell in a row or column to identify that row or column as a sort key.

5. To sort by more than one key, enter references in the 2nd Key or 3rd Key boxes.
6. Select Ascending or Descending order for each key you specify.
7. Choose OK to sort the database and close the dialog box.



Sorts the rows based on the column that contains this cell.

To undo a sort

- From the Edit menu, choose Undo Sort.

Reporting with a Database

Once you have created a database in Microsoft Excel, you can *extract* a copy of records that meet specified criteria. Microsoft Excel compares the criteria to the data in the database and extracts records that match those criteria.

You can extract an entire record, or individual fields. For example, you could use a criterion that finds records for clients who did less than $50,000 of business with you last year. You can also extract partial records by extracting only the names and addresses of those clients.

This section gives you step-by-step instructions to complete the tasks needed to extract records from your database, including the following:

- Setting up a criteria range.
- Setting up an extract range.
- Extracting a subset of records.
- Printing a subset of records.

To set up a criteria range

The criteria range can be any area on the worksheet outside your database range, or it can be on another worksheet. Once you've set up a database, the first step to extracting records is to set up a *criteria range.* Setting up a criteria range is similar to setting up a database range.

1. In one row of the worksheet—outside the database range, type the criteria names.

   You can use any combination of field names and new criteria names. For example, if you want to extract records based on individual fields, use those field names as criteria names. If you want to extract records based on calculations, create new names for those criteria names.

2. In the rows below the criteria names, enter the criteria that you want to use for matching database records. See the following illustration for an example.
3. Select the range of cells that contain your criteria names and criteria.
4. From the Data menu, choose Set Criteria.

   Microsoft Excel names the range *Criteria1.*

This criteria range specifies invoice numbers less than 21012 for Western Reserve Bank.

	A18		<21012			
	A	B	C	D	E	F
6	Invoice	Date	Company	Amount	Tax	TOTAL
7	21008	5/23/93	Western Reserve Bank	$6,500.00	$373.75	$6,873.75
8	21009	5/26/93	Tom's Toy Warehouse	$1,300.00	$74.75	$1,374.75
9	21010	5/27/93	Western Reserve Bank	$495.00	$28.46	$523.46
10	21011	6/6/93	King of the Hill Sports	$756.00	$43.47	$799.47
11	21012	6/12/93	King of the Hill Sports	$90.00	$5.18	$95.18
12	21015	6/30/93	Western Reserve Bank	$5,425.00	$311.94	$5,736.94
13	21016	7/1/93	Magic Bus Tours	$995.00	$57.21	$1,052.21
14	21017	7/12/93	Tom's Toy Warehouse	$1,268.00	$72.91	$1,340.91
15						
16						
17	Invoice	Date	Company	Amount	Tax	TOTAL
18	<21012		Western Reserve Bank			

Microsoft Excel accepts comparison operators such as <, meaning less than, or >, meaning greater than.

Hint

You can use the name Criteria as you would any other named reference. For example, to quickly select the criteria range, choose the Goto command from the Formula menu, select the name Criteria in the Goto box, and choose OK.

More about Criteria Ranges

You can specify either *comparison criteria* or *computed criteria* in the criteria range to find, delete, or extract database records.

- **Comparison criteria.** You use *comparison criteria* to find records whose field contents either match or fall within limits you specify.
- **Computed criteria.** You use *computed criteria* to find records that meet criteria based on a formula. You use a formula when your database does not contain the fields that would allow the use of comparison criteria. For example, if you want to find records with invoice totals less than $1,000.00, but your database has only Price and Quantity fields, you could use the formula =Price*Quantity<1000 as your criterion.

To set up an extract range

Before extracting records from a database, you must create an *extract range.* The extract range must be outside the database range. The extract range can be either a range containing only field names or a range containing field names and the cells that will contain the extracted data.

1. In one row of the worksheet, type the field names for the fields you want to extract.

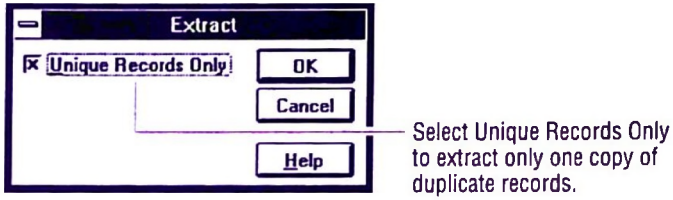
   The field names you choose for the extract range must match the database field names exactly.

2. Select the cells that contain the extract field names.
3. From the Data menu, choose Set Extract.

To extract database records

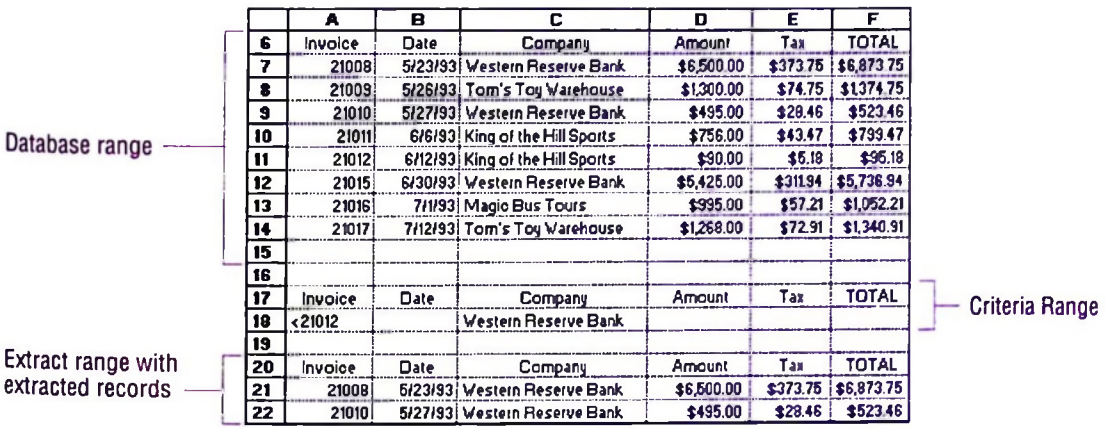
When you extract data, Microsoft Excel replaces any values or formulas below the extract-range field names with the extracted information. If the extract range contains only the field names, all cells below the field names to the bottom of the worksheet are cleared whether information is extracted into them or not. Make sure that you do not have important information in a column below an extract range containing only field names—*or it will be permanently lost.* You cannot reverse the Extract command on the Data menu with the Undo command.

1. Define the database and criteria ranges.
2. Define the extract range.
3. From the Data menu, choose Extract.



4. Choose OK.

The following illustration shows a database, criteria range, and extract range with extracted records.



	A	B	C	D	E	F
6	Invoice	Date	Company	Amount	Tax	TOTAL
7	21008	5/23/93	Western Reserve Bank	$6,500.00	$373.75	$6,873.75
8	21009	5/26/93	Tom's Toy Warehouse	$1,300.00	$74.75	$1,374.75
9	21010	5/27/93	Western Reserve Bank	$495.00	$28.46	$523.46
10	21011	6/6/93	King of the Hill Sports	$756.00	$43.47	$799.47
11	21012	6/12/93	King of the Hill Sports	$90.00	$5.18	$95.18
12	21015	6/30/93	Western Reserve Bank	$5,425.00	$311.94	$5,736.94
13	21016	7/1/93	Magic Bus Tours	$995.00	$57.21	$1,052.21
14	21017	7/12/93	Tom's Toy Warehouse	$1,268.00	$72.91	$1,340.91
15						
16						
17	Invoice	Date	Company	Amount	Tax	TOTAL
18	<21012		Western Reserve Bank			
19						
20	Invoice	Date	Company	Amount	Tax	TOTAL
21	21008	5/23/93	Western Reserve Bank	$6,500.00	$373.75	$6,873.75
22	21010	5/27/93	Western Reserve Bank	$495.00	$28.46	$523.46

To print database records

1. Select the part of the worksheet you want to print—for example, the database, criteria range, or extract range.
2. From the Options menu, choose Set Print Area.
3. From the File menu, choose Print.

For more information on printing worksheets, see chapter 9.

8

Working with Charts

Working with Charts

In This Chapter

This chapter describes how to create and use charts, graphic representations of worksheet data. Microsoft Excel offers 14 types of charts on the Chart toolbar: 7 two-dimensional (2-D) chart types and 7 three-dimensional (3-D) chart types. This chapter introduces the basics, like how to create charts from worksheets and change chart types. This chapter also covers more advanced skills, like how to add chart items and change the view of a 3-D chart.

On the OmniBook, you can use Word to create a Microsoft Excel bar chart in a Word document. Then, you can use the features described in this chapter to refine the chart. See the OmniBook *Word for Windows Guide* for details about this Word feature.

This chapter shows you how to

- Create charts.
- Change a chart's type or format.
- Open charts.
- Select chart items.
- Add and edit chart text, arrows, and legends.
- Change the 3-D view.

Creating a Chart

A *chart* is a graphic representation of worksheet data. A chart includes the *plot area*—the area in which Microsoft Excel plots your data—and any labels or legends you include. After selecting the worksheet data you want to plot, you can create a chart directly on a worksheet as an *embedded chart*, or as a separate document in its own window. Both types of charts are linked to their source worksheets, so charts are updated when you update the source data.

This section gives you step-by-step instructions for

- Creating an embedded chart or a chart document.
- Changing a chart's type.
- Changing a chart's format.

ChartWizard button

To create an embedded chart on a worksheet

1. Select the range of worksheet cells that contain the data you want to plot, including any worksheet column or row labels that you want used in the chart.

   Do not select empty cells outside the rows and columns you want plotted.

2. Click the ChartWizard button in the Standard toolbar.
3. Point to where you want one corner of the chart located and drag until the rectangle is the size and shape you want the chart to be.
4. Follow the instructions that appear in the ChartWizard. For a description of the options, choose Help.

   To move to the next step in the ChartWizard, choose Next>.

   To move to the previous step in the ChartWizard, choose <Back.

   To cancel ChartWizard and return to the worksheet, choose Cancel.

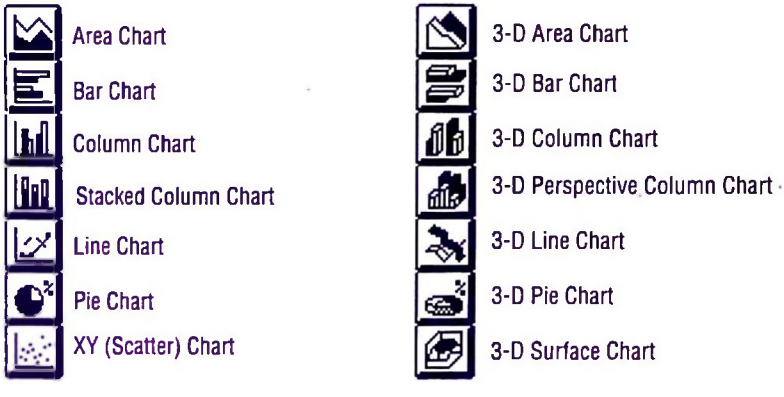
If you want to base the chart on nonadjacent ranges of worksheet cells, select the first range, then hold down Ctrl and drag through each additional range of cells.

To create a chart document

1. Select the range of worksheet cells that contain the data you want to plot, including any worksheet column or row labels that you want used in the chart.
2. From the File menu, choose New.
3. Select Chart.
4. Choose OK.
5. If necessary, you're asked how to interpret the first row or column of data—as one series of data points, as labels for data categories, or as x-coordinates for other data points. Select the appropriate option and choose OK.

To change the chart type or format

1. Select the embedded chart on the worksheet or switch to the chart window.
2. If the Chart toolbar isn't displayed, click the right mouse button in the Standard toolbar and choose Chart.
3. Click the charting tool that corresponds to the chart type and format you want.



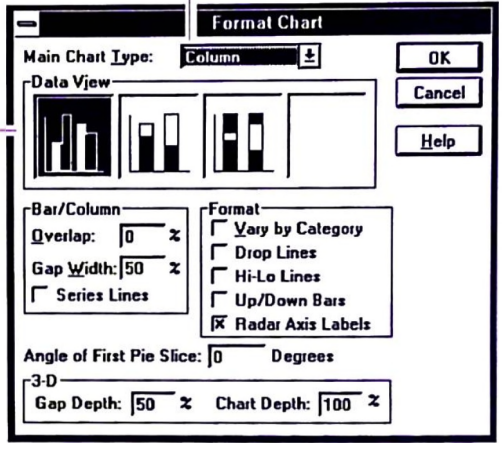
To change the chart type and retain your custom formatting

1. Switch to the chart window. For an embedded chart, double-click the chart.
2. From the Format menu, choose Main Chart.
3. In the Main Chart Type box, select the chart type you want.
4. If more than one format is available for the type of chart you want, choose the format you want under Data View.
5. Select any other options that apply, if you want.
6. Choose OK.

Select the type of chart you want ...

... then select the format for the chart.

For certain chart types, you can specify other options.



Preferred Chart button

To restore a chart to the preferred format

1. Switch to the chart window. For an embedded chart, double-click the chart.
2. If the Chart toolbar isn't displayed, click the right mouse button in the Standard toolbar and choose Chart.
3. Click the Preferred Chart button on the Chart toolbar.

To change the preferred chart format

1. Create a chart that's formatted with the chart type and formats you want used for all your charts, and make sure this chart is the active document. For an embedded chart, double-click the chart.
2. From the Gallery menu, choose Set Preferred.

   Microsoft Excel saves all formatting details of the active chart document as the preferred chart format.

Editing and Formatting a Chart

After you've created a chart, you can edit it and change its format as you like. To edit or format a chart, you must open it in its own window. You can then add and edit chart titles, labels, arrows, and legends to clarify or draw attention to the data represented in the chart. You can rotate and elevate a 3-D chart to show the best view of the chart.

This section gives you step-by-step instructions for

- Opening charts.
- Selecting chart items.
- Adding, editing, and deleting chart text.
- Adding, editing, and deleting legends and arrows.
- Changing the 3-D chart view.

To open a chart document

1. Click the Open File button in the Standard toolbar.
2. In the File Name box, select the chart you want to open or type the complete file name.

   To list only charts in the Files box, choose Microsoft Excel Charts in the List Files Of Type box, and choose OK.
3. Choose OK.

To open an embedded chart in its own window

1. Open the worksheet.
2. Double-click the embedded chart.

To select chart items

To do this	Do this
Select an item	Click the item you want to select.
Select a chart data series	Click any marker in the chart data series.
Select a single data marker	Hold down (Ctrl) and click the data marker.
Select the entire plot area	Click any area in the plot area not occupied by another item.
Select the entire chart	Click anywhere outside the plot area where there is not another item.

Text Box button

To add unattached text

1. Make sure the chart is opened in its own window and the Chart toolbar is displayed.
2. Click the Text Box button on the Chart toolbar and type the text you want.

   The text appears in the formula bar. You can edit the text in the formula bar just as you would edit text for a worksheet cell.
3. Click the enter box or press (Enter).

To add a chart title or axis title

1. Make sure the chart is opened in its own window.
2. From the Chart menu, choose Attach Text.
3. Select the option that corresponds to the part of the chart to which you want to title.
4. Choose OK.

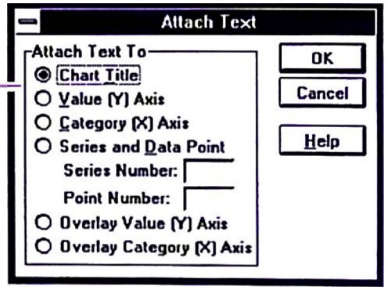
   Microsoft Excel adds default text in the appropriate chart location and surrounds the text with white selection squares.

5. Type the text you want.

   The text appears in the formula bar. You can edit the text in the formula bar just as you would edit text for a worksheet cell.

6. Click the enter box or press Enter.

Select the type of title you want to add.



To label a data point

1. Make sure the chart is opened in its own window.
2. Select the data point by holding down Ctrl and clicking the data point.
3. From the Chart menu, choose Attach Text.
4. If necessary, edit the Series And Data Point options.
5. Choose OK.

Microsoft Excel adds the data value and surrounds it with selection squares.

6. Type the text you want.

   The text appears in the formula bar. You can edit the text in the formula bar just as you would edit text for a worksheet cell.

7. Click the enter box or press (Enter).

To delete chart text

1. Make sure the chart is opened in its own window.
2. Click the text to select it.
3. From the Edit menu, choose Clear.

To edit chart text

1. Make sure the chart is opened in its own window.
2. Click the text on the chart to select it.
3. Click the formula bar (or press (F2)) to make it active.
4. Edit the text in the formula bar as you would edit text in a worksheet cell—see "To edit a cell entry" on page 3-12.
5. Click the enter box or press (Enter).

To format chart text

1. Make sure the chart is opened in its own window.
2. To format all the text in a chart, from the Chart menu choose Select Chart.
   -or-
   To format a single piece of unattached text, click the text to select it.
3. Click one of the formatting or alignment tools to format the text—see "To change the appearance of data" on page 4-3.

To add a chart arrow

Arrow button

1. Make sure the chart is opened in its own window and the Chart toolbar is displayed.
2. Click the Arrow button on the Chart toolbar to insert an arrow.
3. To change its size or direction, click it if it's not selected, then drag a black selection handle to move that end of the arrow.
   -or-
   To move the arrow, drag the arrow shaft.

To delete a chart arrow

1. Make sure the chart is opened in its own window.
2. Select the arrow you want to delete.
3. From the Chart menu, choose Delete Arrow.

To format the arrow shaft and arrowhead

1. Make sure the chart is opened in its own window.
2. Double-click the arrow to select it and display the Patterns dialog box.
3. Under Line, select the style, color, and weight options you want for the arrow shaft.

4. Under Arrow Head, select the style, width, and length options you want for the arrowhead.
5. Choose OK.

Legend button

To add a legend

A legend describes the data markers in a chart. For example, it identifies multiple data series for a bar chart.

1. Make sure the chart is opened in its own window and the Chart toolbar is displayed.
2. Click the Legend button on the Chart toolbar.

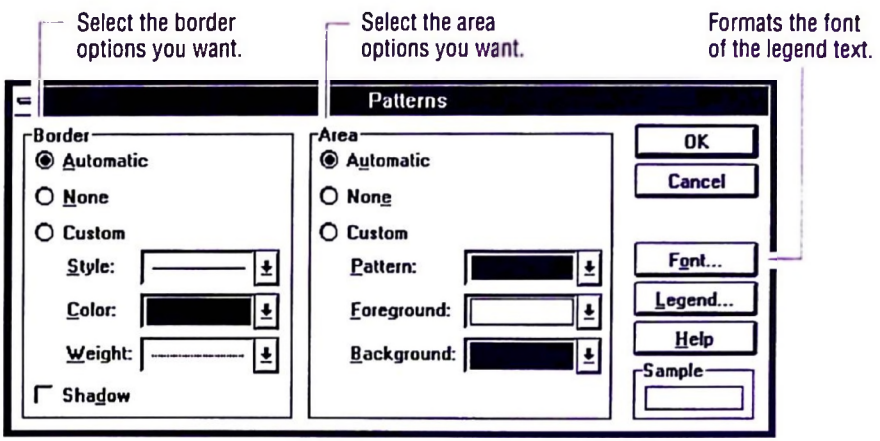
   The legend is inserted to the right of the plot area and resizes the plot area to accommodate the legend.
3. To move the legend, click it if it's not selected, then drag it to the desired position.

To delete a legend

1. Make sure the chart is opened in its own window and the Chart toolbar is displayed.
2. Click the Legend button on the Chart toolbar.

To format a legend

1. Make sure the chart is opened in its own window.
2. Double-click the legend to display the Patterns dialog box.
3. Select the Border and Area options you want.
4. To format the font of the legend text, choose Font and select the options you want.
5. Choose OK to apply all your changes and close the dialog box.

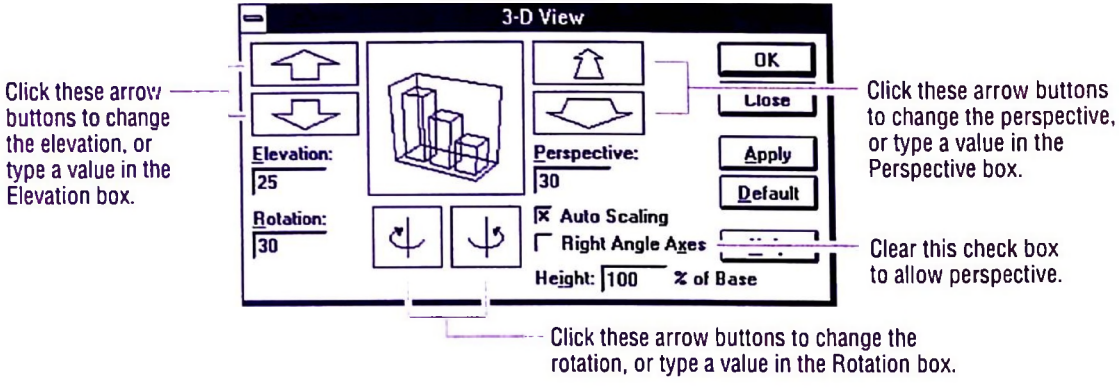


To format the plot area, 3-D walls, or 3-D floor

1. Make sure the chart is opened in its own window.
2. Double-click the plot area, walls, or floor to display the Patterns dialog box.
3. Select the Border and Area options you want.
4. Choose OK.

To adjust the 3-D chart view

1. Make sure the chart is opened in its own window.
2. From the Format menu, choose 3-D View.
3. Adjust the view by clicking the boxes shown below.
4. Choose OK to apply your changes and close the dialog box.


Click these arrow buttons to change the elevation, or type a value in the Elevation box.
3-D View
OK
Close
Apply
Default
Elevation:
25
Perspective:
30
Rotation:
30
Auto Scaling
Right Angle Axes
Height: 100 % of Base
Click these arrow buttons to change the perspective, or type a value in the Perspective box.
Clear this check box to allow perspective.
Click these arrow buttons to change the rotation, or type a value in the Rotation box.

9

Printing and Sending Documents

Printing and Sending Documents

In This Chapter

You can print all or part of a document. You can also preview the pages before they're printed—with correct margins and page breaks, and with headers and footers in place.

This chapter shows you how to

- Preview a document.
- Print part or all of a document.
- Design the layout of printed pages.

Printing Your Work

After you set up your OmniBook for a printer, printing is simple—you just connect the printer and choose the Print command. With Microsoft Excel, you can even change the printer you want to use and adjust its printing options. For complete instructions for installing and setting up a printer, see chapter 3, "Setting Up a Printer," in the OmniBook *Operating Guide*.

You can also control the appearance of your document by formatting the page layout—see "Laying Out Printed Pages" on page 9-7.

This section shows how to

- Preview a document to see how it will print.
- Select the printer you want to use.
- Print part or all of a document.

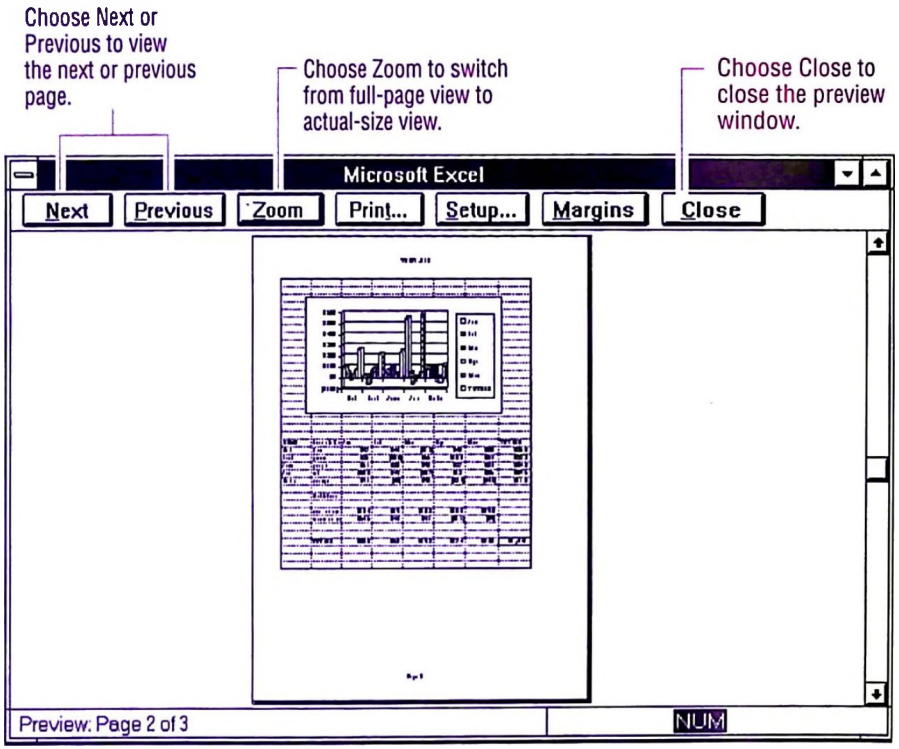
Print button

To preview a document

You can preview a document to see each page exactly as it will be printed—with the correct margins and page breaks, and with the headers and footers in place.

1. Hold down (Shift) and click the Print button on the Standard toolbar.
   -or-
   From the File menu, choose Print Preview.

   Microsoft Excel displays your document as it will look when it is printed. Your document is initially shown reduced so the entire page fits on the screen.
2. When you're finished previewing, choose Close.



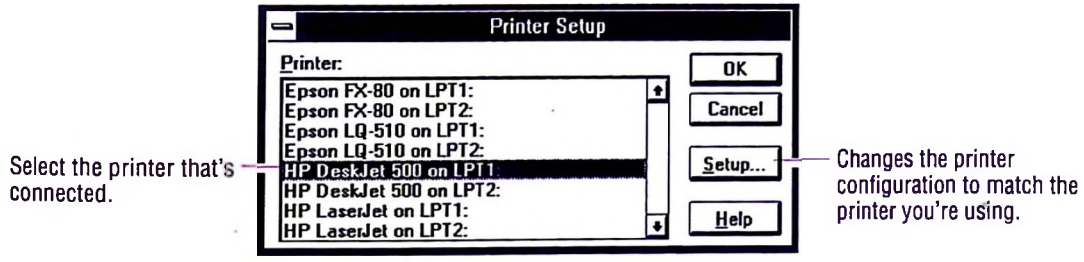
To select or set up a printer

1. From the File menu, choose Page Setup.
2. Choose Printer Setup.

   A dialog box displays a list of the printers that are installed for your system.

3. Select the printer you're going to use.
4. Choose OK to exit the Printer Setup dialog box.
5. Choose OK to save your printer selection and exit the Page Setup dialog box.

Your printer selection remains in effect from session to session, until you specify otherwise.



To print a document

- Click the Print button on the Standard toolbar.

  Microsoft Excel immediately prints your document using current settings. You can cancel printing by choosing Cancel (or pressing Esc).

If you want to select other print options, choose Print from the File menu—then make your selections in the displayed dialog box. For example, you can select a range of pages or the number of copies.

To print only a range of cells

1. Select the range or ranges you want to print.

   If you make nonadjacent selections for your print area, each nonadjacent selection prints on a separate page.

2. From the Options menu, choose Set Print Area.

   The current selection becomes the print area and is named *Print_Area*.

3. Click the Print button on the Standard toolbar.

   Microsoft Excel immediately prints your document using current settings.

To cancel the print area, select the entire worksheet (click the Select All box to the left of the column headings), then from the Options menu choose Remove Print Area.

Laying Out Printed Pages

You can set up your own page layout with headers and footers that print at the top and bottom of each page of your document—or row and column titles that repeat on each page. Also, Microsoft Excel automatically separates larger worksheets into pages—but you can insert manual page breaks where you want them.

This section gives you step-by-step instructions for

- Set up the page layout.
- Set and remove manual page breaks.
- Set up a header or footer.
- Set up row or column titles.

To set up the page layout

You can define how a document appears on the page. For example, you can specify the page margins and decide whether you want the row and column headings and gridlines to print.

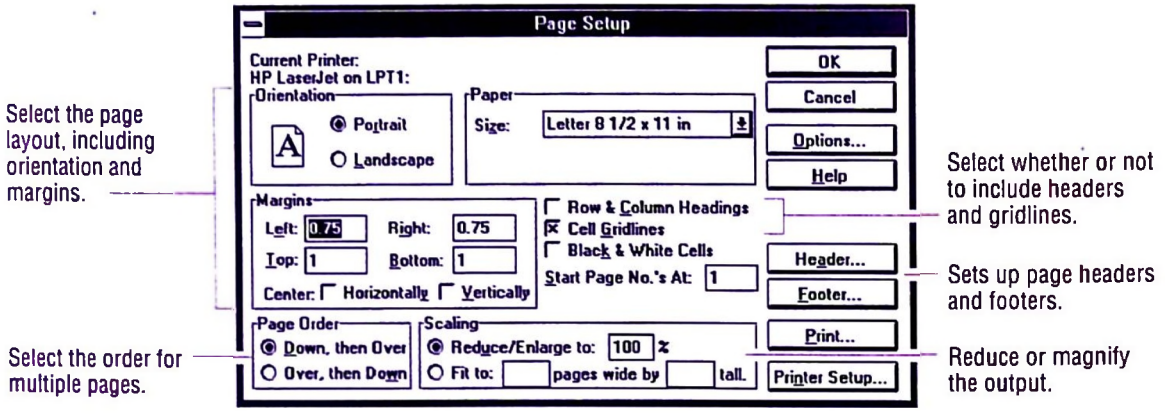
1. From the File menu, choose Page Setup.

   A dialog box is displayed with various options, depending on the type of window that's active (such as worksheet or chart).

2. Select the page setup options you want.

   For a description of the options, choose Help in the dialog box.

3. Choose OK.



To insert a manual page break

For a worksheet larger than one page, Microsoft Excel inserts automatic page breaks—they're shown in the worksheet as dashed lines. You can insert a manual page break to force a new page at the position you want. Be aware that for a large worksheet, long rows break onto separate pages *and* long columns break onto separate pages.

1. To insert a page break between rows, select the last row you want on the page.
   -or-
   To insert a page break between columns, select the last column you want on the page.
   -or-
   To insert page breaks vertically and horizontally, select bottom-right cell you want on the page.
2. From the Options menu, choose Set Page Break.

   Microsoft Excel adjusts all automatic page breaks below or to the right of the manual page break.

To remove a manual page break

1. Select any cell directly below or to the right of the manual page break.

   To remove all manual page breaks, select the entire worksheet by clicking the Select All button to the left of the column headings.

2. From the Options menu, choose Remove Page Break.

To create a header or footer

1. From the File menu, choose Page Setup.
2. Choose Header or Footer.
3. Type your text in the appropriate section.

   You can include any of the following options in your header or footer.

To insert this	Click
Page number	
Total number of pages	
Date	
Time	
File name	

4. Choose OK to close the Header or Footer edit window.
5. Choose OK to close the Page Setup dialog box.

To create row or column titles

You can specify rows or columns that you use as titles—they appear on each page above the worksheet columns, or on each page to the left of each row. These titles are especially useful for printing a worksheet larger than one page—the titles label rows and columns that split onto separate pages.

1. If you want titles across the top of pages, select one or more adjacent rows you want to use as the titles.
2. If you want titles down the left of pages, select one or more adjacent columns you want to use as the titles.
3. From the Options menu, choose Set Print Titles.

   The selected ranges appear in the Titles For Columns and Titles For Rows boxes.

4. Choose OK.

The print titles first print where they appear in the worksheet, then at the top or left of subsequent pages.

To cancel the print titles, select the entire worksheet (click the Select All box to the left of the column headings), then from the Options menu choose Remove Print Titles.

10

Working with Multiple Documents

Working with Multiple Documents

In This Chapter

Microsoft Excel produces spreadsheets and charts that are very useful on their own, but you may often need to work with many documents together. You can move information from one document to another, link cells between worksheets, and even work with other OmniBook applications. *Workbooks* are groups of related documents stored together—they allow you faster and easier access to your files.

This chapter shows you how to

- Link cells.
- Enter external references into formulas.
- Use Microsoft Excel with other applications.
- Create and use workbooks.

Using Multiple Documents

When you work with more than one document, you can copy data from one worksheet to another by using the Clipboard. You can also *link* cells from *source* worksheets to *destination* worksheets. The linked cells appear on both worksheets, but you can edit them only on the source worksheet. When you edit the source worksheet and update the links, your changes appear in the destination worksheets as well.

This section gives you step-by-step instructions for

- Copying data between worksheets.
- Linking a range of cells and redirecting links.
- Entering external references into a formula.
- Opening, updating, and viewing source worksheets.

To copy data from one worksheet to another

When you copy data between worksheets, the original data and pasted data are independent—if you make changes to one, the other isn't affected.

1. Switch to the worksheet containing the data you want to copy.
2. Select the cell or cells you want to copy.
3. Click the Copy button on the Standard toolbar.

   The selection is marked with a moving border.

4. Switch to the other worksheet.
5. Select the upper-left corner of the range where you want the copy to appear.
6. From the Edit menu, choose Paste.
7. To copy the same cells to another location, repeat the previous three steps with a different paste area.
8. To cancel the moving border after you have finished copying, press Esc (or choose a command or switch to the formula bar).

To link a range of cells

When you *link* data within a worksheet or between worksheets, the source data and linked data are connected—if you make changes to the source, the linked data changes also.

1. In the source worksheet, select the cells to which you want to refer.
2. Click the Copy button on the Standard toolbar.

   The selection is marked with a moving border.

3. Switch to the worksheet on which you want to paste the linked data.
4. Select the cell or the upper-left corner of the range in which you want the linked data to appear.
5. To paste the linked data into the selected cells, from the Edit menu choose Paste Link.

   –or–

   To paste the data as a linked picture at the active cell location, hold down (Shift) and from the Edit menu choose Paste Picture Link.
6. To cancel the moving border after you have finished copying, press (Esc) (or choose a command or switch to the formula bar).

Microsoft Excel creates an external reference formula that links the cells or worksheets. This formula appears in the formula bar. The external reference formula uses absolute references—if you copy the formula to another location, it still refers to the same source cells.

To view or edit the source data for a link

You can open or view the source worksheet for a link in the active worksheet.

- In the dependent worksheet, double-click the cell or picture containing the external reference.

To enter an external reference in a formula

1. Select the cell in which you want to enter the external reference.
2. Start the formula by typing an equal sign (=), or, if you're not starting the formula with the external reference, type the operator you want to precede the external reference.
3. Switch to the worksheet containing the cells you want to refer to in the external reference, and select the cell or cell range you want.

   Microsoft Excel enters the reference of the selected cell or range into the formula.

   You can also type the external reference or name instead of selecting the cells.
4. When you finish entering the formula, click the enter box or press Enter.

To open, update data from, or view source worksheets

1. Switch to the dependent worksheet.
2. From the File menu, choose Links.
3. In the Link Type box, select Excel Links.
4. In the Links box, select the source worksheet you want to open or update from. (To select more than one worksheet, hold down Ctrl and click the name of each worksheet.)
5. Choose one of the following:
   - To open the selected source worksheets, choose Open.
   - To update values in the active dependent worksheet without opening the source worksheets, choose Update.
   - If you are just viewing the list, choose Close when you're finished.

To redirect links for a source worksheet

If you move or rename a worksheet that's a source for linked data, you should change the external references in the dependent worksheets.

1. Switch to the dependent worksheet.
2. From the File menu, choose Links.
3. In the Link Type box, select Excel Links.
4. In the Links box, select the source worksheet for which you want to redirect links. (To select more than one worksheet, hold down Ctrl and click the name of each worksheet.)
5. Choose Change.
6. Select the name of the new source worksheet and choose OK.

   Microsoft Excel redirects the link.

   If you selected more than one worksheet, the dialog box appears again so you can redirect the next link—repeat this step for each worksheet you selected.
7. Choose Close to close the Links dialog box.

Using Multiple Applications

You can share data between Microsoft Excel and other applications. For example, you can share data with another spreadsheet application—or you can combine spreadsheet data and word-processing text in either the spreadsheet or in the text document.

An embedded object exists as part of the local document—it doesn't depend on any other document, but it calls another application when you want to edit it. A linked item exists in the local document only as a reference to an independent source document—and it calls the source application when you want to edit it, or you can simply edit the source document.

This section discusses the following tasks:

- Opening a worksheet from another application.
- Saving a worksheet for use in another application.
- Linking and embedding data with Microsoft Excel.

To open a document from another application

You can use Microsoft Excel to open a file created by another application, such as another spreadsheet application.

1. Click the Open File button on the Standard toolbar.
2. Select the name of the file you want to open.

   If you don't see the file, select a new drive or directory, or select a new file type.

3. Choose OK.

   If Microsoft Excel doesn't recognize the type of file you're opening, you can try opening it as a text file.

Hint

If you want to open a text file that uses a certain character as a delimiter between cells—or is based on the MS-DOS character set—choose Text in the Open dialog box and select the appropriate Column Delimiter and File Origin options.

To save a Microsoft Excel document for use in another application

You can save a worksheet or other document so it can be opened by another application, such as an earlier version of Microsoft Excel or another spreadsheet application.

1. From the File menu, choose Save As.
2. In the Save File As Type box, select the format you want. Normal means the current version Microsoft Excel format.
3. In the File Name box, type a new name for the document.
4. Choose OK.

To create a new embedded object in a worksheet

From within Microsoft Excel, you can create an object using another application and embed it in the worksheet. Such an object usually appears as an icon. You use the source application for viewing and editing the information.

1. In the worksheet, select the location where you want to embed the object.
2. From the Edit menu, choose Insert Object.
3. Select the type of object you want to create and embed.
4. Choose OK.

   The corresponding application starts and opens a blank or default document.

5. In the new application, create the information you want to embed—then from its File menu choose Close, Exit, or Exit And Return, depending on the application.

   The object appears in the worksheet.

To embed data from another application into a worksheet

You can insert existing data from another application into a worksheet. Such data can appear as an icon or as an image, or it can be inserted as Microsoft Excel data—depending on the data type you choose and the source application. This lets you use the source application or Microsoft Excel for viewing and editing the information.

1. Open the application and document containing the data you want to insert.
2. In that application, select and copy the data you want. For example, use the Edit menu Copy command.
3. Switch to the Microsoft Excel document.
4. Select the location where you want to insert the data.
5. From the Edit menu, choose Paste Special.
6. In the Data Type box, select the type of data you want to insert.
7. Choose Paste.

   The data appears in the worksheet.

To link data from another application into a worksheet

You can link existing data from another application to a worksheet—and that data remains connected to the original information. If you change the data in the source document, you can automatically update the data in the worksheet. The appearance of the linked data depends on the data type you choose and the source application. You use the source application for editing the information.

1. Open the application and document containing the data you want to insert.
2. In that application, select and copy the data you want. For example, use the Edit menu Copy command.
3. Switch to the Microsoft Excel document.
4. Select the location where you want to insert the linked data.

5. To paste the data normally, from the Edit menu choose Paste Link.
   -or-
   To paste the data as a picture of the data, hold down (Shift) and from the Edit menu choose Paste Picture Link.
   -or-
   To paste the data in a particular form, from the Edit menu choose Paste Special and select the type of data you want to link, then choose Paste Link.

   The linked data appears in the worksheet.

To embed or link Microsoft Excel data into another application

After you've created and formatted a worksheet, chart, or graphic object in Microsoft Excel, you can insert it into a document in another application. For example, you can insert a chart into a report you're creating with Microsoft Word.

You can embed the Microsoft Excel data—or you can link it so that changes you make to the worksheet appear in the other document.

1. In the Microsoft Excel document, select the data you want.
2. From the Edit menu, choose Copy.
3. Switch to the other application and document, then use its capabilities to embed or link the data. For example, use the Edit menu Paste Special or Paste Link commands.

For information on how to embed or link a Microsoft Excel object to Word, see chapter 10 in the OmniBook *Word for Windows Guide.*

To edit an embedded object or linked data

1. Double-click the object or data.
2. Use the source application to make the changes.
3. Save the changes using the appropriate command for the source application. For example, from the File menu choose Close, Exit, or Update.

Managing Documents with Workbooks

You can place related documents together in *workbooks*—groups of documents that are opened, closed, and saved together. Workbooks provide better file management and easier access. They also keep track of the placement of your windows and the order of their arrangement.

After you've created a workbook, you can open, close, save, and name it just like any other document. For more information on these operations, see "Working with Files and Documents" on page 2-3.

Documents in a workbook can be either *bound* or *unbound* to the workbook. Bound documents are saved with the workbook, while unbound documents are saved on their own. Both types of documents are opened with the workbook, but only unbound documents can belong to more than one workbook.

This section shows you how to perform the following tasks:

- Create workbooks.
- Add documents to workbooks.
- Arrange documents in workbooks.
- Remove documents from workbooks.
- Move and copy documents between workbooks.
- Bind and unbind documents.

To create a new workbook

1. From the File menu, choose New.
2. In the New box, select Workbook.
3. Choose OK.

   Microsoft Excel creates a new workbook and names it *Book1*.

To add a document to a workbook

1. Open the workbook.
2. Choose Add (or press Alt+Shift+A).
3. Select the document you want to add to the workbook and choose OK.
   -or-
   If the document isn't listed, choose Open and select the file, then choose OK. Choose Close to close the dialog box.

   The document is added to the workbook as a bound document. For more information on binding and unbinding documents, see "To bind or unbind a document" on page 10-14.

To move between workbook documents

Contents

Right Paging
Left Paging

Workbooks make it easier to move between related documents. While in any document, you can quickly move to any other document in that workbook.

1. Click the Contents button in the lower-right corner of the document window.
2. From the Workbook Contents window, double-click the document you want to move to.

   The selected document becomes active.

Hint

To move between documents in sequence, use the Right Paging and Left Paging buttons in the lower-right corner of the window.

To display the Workbook Contents window

- Click the Contents button in the lower-right corner of the document window.

To reorder documents in a workbook

- Drag the document to a new location within the Workbook Contents window.

To remove a document from a workbook

- Drag the document out of the Workbook Contents window to any place in the Microsoft Excel workspace.
  -or-
  Select the document in the Workbook Contents window, then choose Remove (or press Alt+Shift+R).

To move a document from one workbook to another

- Drag the document to another Workbook Contents window or icon.

  The document moves to the destination workbook and updates any links to the document to reflect the location change. The document is now either bound or unbound, depending on its status in the original workbook.

To copy a document from one workbook to another

Because bound documents can belong to only one workbook, you can copy only unbound documents from one workbook to another. For information on binding and unbinding documents, see "To bind or unbind a document" on page 10-14.

- Hold down Ctrl and drag the unbound document to another Workbook Contents window or icon.

A copy of the document appears in the second workbook. If the original document was linked to another worksheet, it maintains those links. The *copy*, however, is not linked.

Bound

Unbound

To bind or unbind a document in a workbook

- Click the icon that follows the document name in the Workbook Contents window.
  –or–
  Select the document in the Workbook Contents window, then choose Options (or press Alt+Shift+O), select the Bound or Unbound option, and choose OK.

  The icon in the Workbook Contents window changes from bound to unbound as the status of the document changes.

11

Automating Tasks with Command Macros

Automating Tasks with Command Macros

In This Chapter

If you find yourself repeating a series of actions or keystrokes, command macros could save you time by automating that series. This chapter describes how to record and play back a sequence of keystrokes, one of the most basic uses of Microsoft Excel macros. For information about the more advanced functionality of command macros and macro sheets, you may want to refer to one of the books suggested in the introduction to this manual under "Finding Other Learning Sources."

This chapter shows you how to

- Record command macros.
- Run macros.
- Stop a macro while it's recording or running.

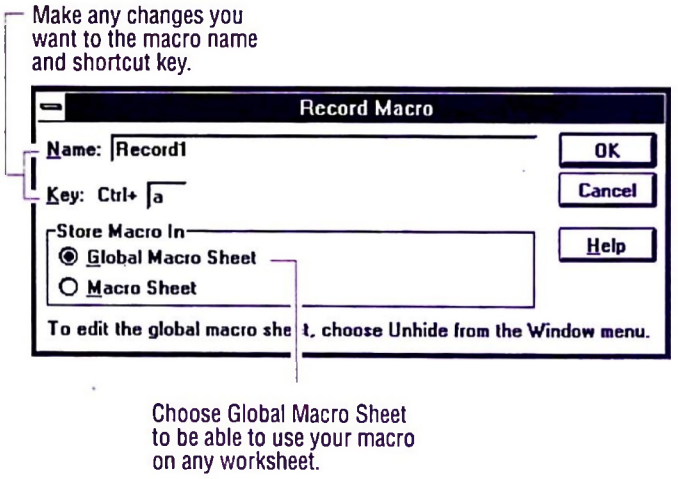
Using Command Macros

In Microsoft Excel, you can record a sequence of keystrokes and mouse actions—called a *command macro*. Microsoft Excel assigns the macro to a shortcut key so you can play it back easily at any time. When you play back, or run, a command macro, it automatically performs all the actions you recorded.

To record a command macro

1. In any worksheet, from the Macro menu choose Record.
   -or-
   If no documents are open, from the File menu choose Record Macro.
2. Make any changes you want to the proposed name and shortcut key.

   Make sure that the name you specify is a valid Microsoft Excel name—it starts with a letter and consists of only letters, numbers, periods, and underlines. Make sure also that the shortcut key is a single letter.
3. In the Store Macro In box, select Global Macro Sheet so you can use the macro with any worksheet.
4. Choose OK.
5. Carry out the actions you want recorded in the command macro.
6. When you're finished, from the Macro menu choose Stop Recorder.


Make any changes you want to the macro name and shortcut key.
Record Macro
Name: Record1
Key: Ctrl+ a
OK
Cancel
Help
Store Macro In
Global Macro Sheet
Macro Sheet
To edit the global macro she t, choose Unhide from the Window menu.
Choose Global Macro Sheet to be able to use your macro on any worksheet.

To pause the recorder while recording a command macro

1. From the Macro menu, choose Stop Recorder.
2. To start recording again, from the Macro menu choose Start Recorder.

To run a command macro

Whenever you want to repeat the sequence of operations in a command macro, make sure the worksheet is set up the way it should be for the macro to start (such as selecting a cell or range of cells), then run the macro.

1. From the Macro menu, choose Run.
2. In the Run dialog box, select the name of the command you want to run.
3. Choose OK.

-or-

- Hold down (Ctrl) and press the shortcut key assigned to the macro.

To stop a command macro while it's running

1. Press (Esc).

   A dialog box appears asking if you want to halt the macro, step through the macro, continue running the macro, or go to the cell where the macro was stopped.

2. Choose Halt to stop the macro.

12

Using the Keyboard and Toolbars

Using the Keyboard and Toolbars

In This Chapter

When you're familiar with Microsoft Excel, you may want to find ways to increase your productivity. Microsoft Excel has a set of shortcut keys that you can use to take some of the time out of choosing commands. You also have nine toolbars for quick access to the commands you're likely to perform the most. This chapter shows you how to

- Use keyboard shortcuts.
- Work with toolbars.

Keyboard Shortcut Reference

Microsoft Excel has a set of keyboard shortcuts that you can use to carry out commands and select dialog box options directly from the keyboard. By using these shortcut keys, you bypass the menus. With other shortcut keys, you can move, select, and edit large documents more efficiently.

To get Help

To do this	Press
Switch to Help window	F1
Switch to context-sensitive Help	Shift+F1

To move and select

To do this	Press
Move left, right, up, or down	Arrow keys
Move to the beginning of a row	Home
Move up one window	PgUp
Move left one window	Ctrl+PgUp
Move down one window	PgDn
Move right one window	Ctrl+PgDn
Move to the beginning of the worksheet	Ctrl+Home
Move to the lower-right corner of the worksheet	Ctrl+End
Move to the edge of the data block in the direction of the arrow key	Ctrl+Arrow key
Move to the last cell in the current row	End Enter
Select the entire row	Shift+spacebar
Select the entire worksheet except object, if a cell is selected; select all objects if an object is selected	Ctrl+Shift+spacebar
Extend the selection left, right, up, or down	Shift+Arrow key

Extend the selection to the edge of the data block, in the direction of the arrow key	Ctrl+Shift+Arrow key
Extend the selection to the last cell in the current row	End Shift+Enter
Extend the selection to the beginning of the row	Shift+Home
Select the current data block	Ctrl+Shift+*
Go to a specific cell or range	F5
Find the next cell	F7
Find the previous cell	Shift+F7
Make the cell in the upper-left corner of the window active	Home
Make the cell in the lower-right corner of the window active	End

To move within a select

To do this	Press
Move down one cell in the selection	Enter
Move up one cell in the selection	Shift+Enter
Move right one cell in the selection	⏭
Move left one cell in the selection	Shift+⏮
Move to the next corner of the range area	Ctrl+.
Move to the next range within nonadjacent selections	Ctrl+⏭
Move to the previous range within nonadjacent selections	Ctrl+Shift+⏮

To select items in charts

To do this	Press
Select the next item	▶
Select the previous item	◀
Select the next class of items	▲
Select the previous class of items	▼

To edit

To do this	Press
Activate the formula bar	F2
Carry out an action	Enter
Cancel an action	Esc
Repeat the last action	Alt+Enter
Undo the last action	Ctrl+Z
Delete the selection	Ctrl+–
Clear the selection	Del
Clear formulas	Ctrl+Del
Cut the selection	Ctrl+X
Copy the selection	Ctrl+C
Paste the selection	Ctrl+V
Delete the preceding character in the formula bar, or activate and clear the formula bar when a cell is selected	← Backspace
Paste a name into a formula	F3
Define a name	Ctrl+F3

Calculate all documents	F9
Calculate the active document	Shift+F9
Insert the AutoSum formula	Alt+=

To format

To do this	Press
Select the style box	Ctrl+S
Apply the general number format	Ctrl+Shift+~
Apply the currency format with two decimal places (negative numbers appear in parentheses)	Ctrl+Shift+$
Apply the percentage format with no decimal places	Ctrl+Shift+%
Apply the exponential number format with two decimal places	Ctrl+Shift+^
Apply the date format with day, month, and year	Ctrl+Shift+#
Apply the time format with the hour and minute, and indicating A.M. or P.M.	Ctrl+Shift+@
Apply the two-decimal place format with commas	Ctrl+Shift+!
Apply the outline border	Ctrl+Shift+&
Remove all borders	Ctrl+Shift+_
Apply Normal font	Ctrl+1
Apply or remove bold	Ctrl+B
Apply or remove italic	Ctrl+I
Apply or remove underline	Ctrl+U
Apply or remove strikeout	Ctrl+5

To use the formula bar

To do this	Press
Activate the formula bar	F2
Insert the current date into the formula bar	Ctrl+;
Insert the current time into the formula bar	Ctrl+Shift+:
Copy the value from the cell above the active cell into the formula bar	Ctrl+Shift+"
Move one character up, down, left, or right	Arrow keys
Move to the start of the line	Home
Convert a reference from relative to absolute, from absolute to mixed, or from mixed back to relative	F4
Insert a line break in the formula bar	Alt+Enter
Point to a selection in a worksheet after you have typed an operator in the formula bar	Arrow keys

To work with files

To do this	Press
Create a new worksheet	Shift+F11
Create a new chart	F11
Save the active file with the Save As command on the File menu	F12
Save the active file with the Save command on the File menu	Shift+F12
Open an existing file	Ctrl+F12
Print the active file	Ctrl+Shift+F12
Quit Microsoft Excel	Alt+F4

To work with windows

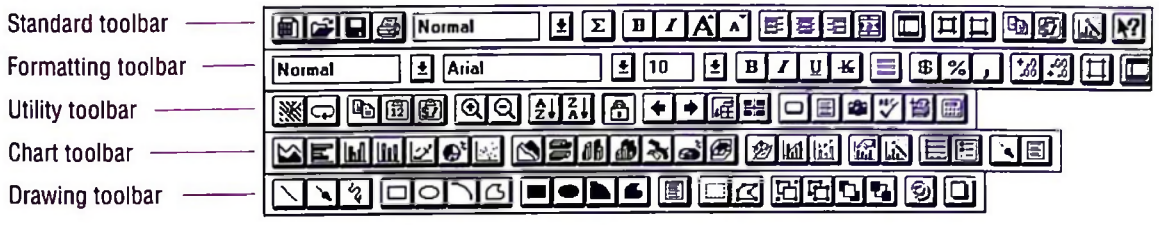
To do this	Press
Select the Control menu	Alt+spacebar
Select the document Control menu	Alt+–
Move the document window	Ctrl+F7, Arrow keys
Size the document window	Ctrl+F8, Arrow keys
Maximize or zoom the document window	Ctrl+F10
Minimize the document window	Ctrl+F9
Restore the document window	Ctrl+F5
Close the document window	Ctrl+F4
Switch to the next open document window	Ctrl+F6
Switch to the previous open document window	Ctrl+Shift+F6
Switch to the next document in the workbook	Alt+PgDn
Switch to the previous document in the workbook	Alt+PgUp

To find records in a database

To do this	Press
Find the next matching record	▼
Find the previous matching record	▲
Find the next matching record at least one window down from the selection	PgDn
Find the previous matching record at least one window up from the selection	PgUp

Toolbar Summary

Microsoft Excel initially displays one toolbar, the Standard toolbar, which provides for the most common actions. However, you can display any of the eight other toolbars. You can display more than one toolbar at a time, and you can position toolbars anywhere on the screen. You can also change the shape and vertical or horizontal orientation of toolbars. The most commonly used toolbars are shown below.

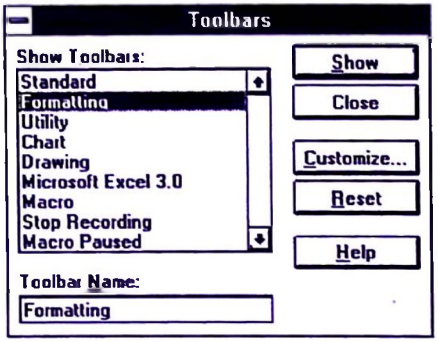


To display or hide a toolbar

1. Position the mouse pointer over the Standard toolbar and click the right mouse button.
2. Choose the name of the toolbar you want to display or hide. A check mark appears next to the name of each displayed toolbar.

-or-

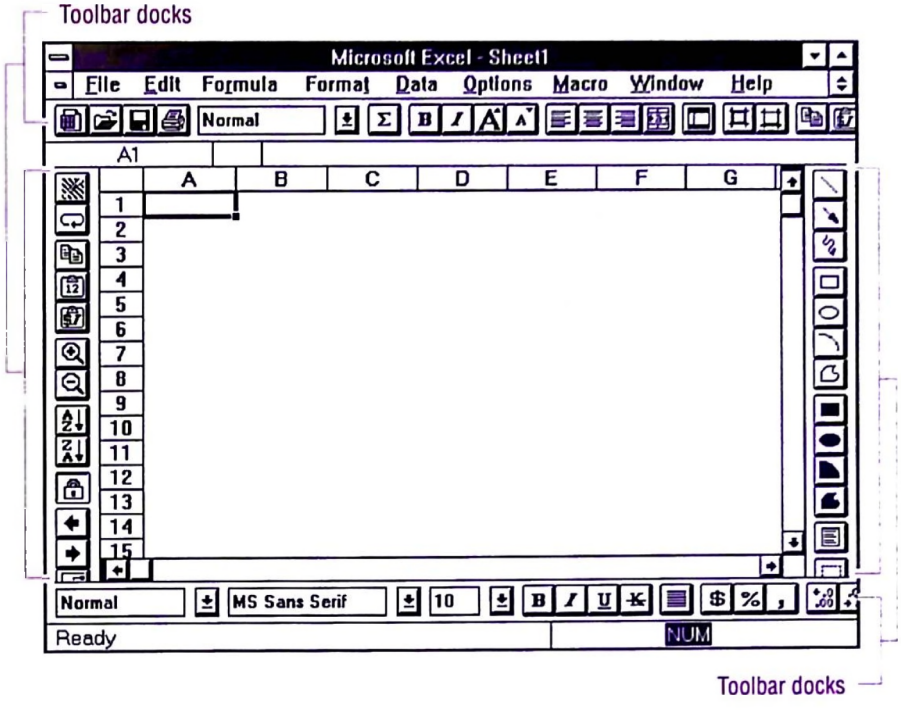
1. From the Options menu, choose Toolbars.
2. In the Show Toolbars box, select the toolbar you want to display or hide.
3. To display the toolbar, choose Show.
   -or-
   To hide the toolbar, choose Hide.



To move a toolbar

1. Position the mouse pointer in a blank area of the toolbar.
2. Drag the toolbar to a new location in the toolbar dock, or anywhere else in the workspace.

If you drag the toolbar near the edge of the main window or above the formula bar, it's automatically placed in a *toolbar dock*. The border of the toolbar changes from a thick window border to a thin border and the toolbar is placed along the edge of the screen. A toolbar that's not in a toolbar dock is called a *floating toolbar*. If a toolbar contains a drop-down list box (such as the Style box), you can't place it in the left or right toolbar dock because the list box can't be aligned vertically.


Toolbar docks
Microsoft Excel - Sheet1
File Edit Formula Format Data Options Macro Window Help
Normal
A1
A B C D E F G
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
Normal
MS Sans Serif
10
Ready
NUM
Toolbar docks

Toolbar Summary

13

Worksheet Function Reference

Worksheet Function Reference

Functions are the tools Microsoft Excel provides for automatically making decisions, taking actions, and calculating values. Microsoft Excel has two types of functions:

- *Worksheet functions*, which you can use in worksheets and in macro sheets. For example, the COS function returns the cosine of an angle.
- *Macro functions*, which you can use only in macro sheets.

In This Chapter

This chapter lists the worksheet functions included with Microsoft Excel in the OmniBook and summarizes their syntax:

- Names of worksheet functions listed alphabetically.
- Arguments and descriptions of worksheet functions listed by the type of operation.

If you need detailed descriptions of worksheet functions or information about macro functions, see one of the books listed in the introduction to this manual.

Worksheet Functions Listed Alphabetically

The OmniBook includes the worksheet functions listed in the following table. See the next section for more information about these functions.

ABS	CONFIDENCE	DVARP	IF	LOOKUP	OR	SINH	TREND
ACOS	CORREL	ERROR.TYPE	INDEX	LOWER	PEARSON	SKEW	TRIM
ACOSH	COS	EVEN	INDIRECT	MATCH	PERCENTILE	SLN	TRIMMEAN
ADDRESS	COSH	EXACT	INFO	MAX	PERCENTRANK	SLOPE	TRUE
AND	COUNT	EXP	INT	MDETERM	PERMUT	SMALL	TRUNC
AREAS	COUNTA	EXPONDIST	INTERCEPT	MEDIAN	PI	SQRT	TTEST
ASIN	COVAR	FACT	IPMT	MID	PMT	STANDARDIZE	TYPE
ASINH	CRITBINOM	FALSE	IRR	MIN	POISSON	STDEV	UPPER
ATAN	CROSSTAB	FDIST	ISBLANK	MINUTE	PPMT	STDEVP	VALUE
ATAN2	DATE	FIND	ISERR	MINVERSE	PROB	STEYX	VAR
ATANH	DATEVALUE	FINV	ISERROR	MIRR	PRODUCT	SUBSTITUTE	VARP
AVEDEV	DAVERAGE	FISHER	ISLOGICAL	MMULT	PROPER	SUM	VDB
AVERAGE	DAY	FISHERINV	ISNA	MOD	PV	SUMPRODUCT	VLOOKUP
BETADIST	DAYS360	FIXED	ISNONTEXT	MODE	QUARTILE	SUMSQ	WEEKDAY
BETAINV	DB	FLOOR	ISNUMBER	MONTH	RAND	SUMX2MY2	WEIBULL
BINOMDIST	DCOUNT	FORECAST	ISREF	N	RANK	SUMX2PY2	YEAR
CEILING	DCOUNTA	FREQUENCY	ISTEXT	NA	RATE	SUMXMY2	ZTEST
CELL	DDB	FTEST	KURT	NEGBINOMDIST	REPLACE	SYD	
CHAR	DEVSQ	FV	LARGE	NORMDIST	REPT	T	
CHIDIST	DGET	GAMMADIST	LEFT	NORMINV	RIGHT	TAN	
CHIINV	DMAX	GAMMAINV	LEN	NORMSDIST	ROUND	TANH	
CHITEST	DMIN	GAMMALN	LINEST	NORMSINV	ROW	TDIST	
CHOOSE	DOLLAR	GEOMEAN	LN	NOT	ROWS	TEXT	
CLEAN	DPRODUCT	GROWTH	LOG	NOW	RSQ	TIME	
CODE	DSTDEV	HARMEAN	LOG10	NPER	SEARCH	TIMEVALUE	
COLUMN	DSTDEVP	HLOOKUP	LOGEST	NPV	SECOND	TINV	
COLUMNS	DSUM	HOUR	LOGINV	ODD	SIGN	TODAY	
COMBIN	DVAR	HYPGEOMDIST	LOGNORMDIST	OFFSET	SIN	TRANSPOSE	

Worksheet Functions Listed by Category

This section summarizes the arguments and descriptions of worksheet functions.

Syntax Conventions

`FUNCTION`	This typeface indicates characters you type as they are—letters can be uppercase or lowercase. All commas are required except those for omitted optional arguments at the end of the argument list.
required_arg	This typeface with underlining indicates required arguments, which you must replace with valid values, such as numbers, text strings, and arrays. (Required arguments are shown without underlining in text.)
optional_arg	This typeface without underlining indicates optional arguments, which you can omit or replace with valid values.
...	Dots mean the previous argument can be repeated several times.

Types of Arguments

The required type of an argument is often apparent from its name, from the syntax, or from the description. An argument can be an explicit value of the required type, a function that returns the required type of value, a reference to a value of the required type, or a value of a different type that can automatically be converted to the required type. The following list summarizes various types of arguments.

Numbers	Decimal numbers and integers, positive and negative. Examples: 14.7, −35.002, 16, 0.
Text	Characters enclosed in double quotation marks. Examples: "A", "Corvallis, OR", "".
Logical values	TRUE and FALSE.
Error values	Standard error results. Examples: #N/A and #NUM!.
References	References to single cells, ranges, and multiple selections, including relative and absolute references. For a multiple selection or a reference using a comma as a union operator, enclose the reference in its own set of parentheses. Examples: $A$10, A10, R[10]C[−10], (A1,C1).
Arrays	Rows and columns of data. Examples: {1,2,3}, {1,2,3;4,5,6}, {"A","B";"C","D";"E","F"}.

On the following pages, the worksheet functions are separated into the following categories, similar to the categories in the Paste Function dialog box:

- Financial functions
- Date and time functions (page 13-8)
- Math and trig functions (page 13-9)
- Statistical functions (page 13-14)
- Lookup and reference functions (page 13-23)
- Database functions (page 13-25)
- Text functions (page 13-27)
- Logical functions (page 13-29)
- Information functions (page 13-30)

Financial Functions

The financial functions use many of the same arguments, which are defined below:

cost the initial cost.

end_period the last period in the calculation.

factor the rate at which the balance declines (2 means double-declining balance, the default).

finance_rate the interest rate you pay on cash flow money.

fv the future value or cash balance after the last payment.

guess a number you guess is close to the expected result.

life the total number of periods of depreciation.

month the number of months of depreciation in the first year (12 is the default).

no_switch a logical value specifying whether to switch to straight-line depreciation when it's greater than the declining balance depreciation (FALSE is the default).

nper the total number of periods (payments) in an investment or loan.

per the period being calculated.

period the period of depreciation (same units as *life*).

pmt the periodic payment of an investment or loan.

pv the present value or lump sum value of a series of future payments.

rate the interest rate or discount rate for one period.

reinvest_rate the interest rate you receive on cash flows that you reinvest.

salvage the value at the end of the depreciation.

start_period the first period in the calculation.

type indicates when payments are due: 0 (the end of each period, the default) or 1 (the beginning of each period).

value1, *value2*, ... payments (negative) and income (positive) for an investment or loan.

values payments (negative) and income (positive) for an investment or loan.

DB(*cost*,*salvage*,*life*,*period*,*month*)

Returns the real depreciation of an asset for a specific period using the fixed-declining balance method.

DDB(*cost*,*salvage*,*life*,*period*,*factor*)

Returns the depreciation of an asset for a specific *period* using the double-declining balance method based on the rate at which the balance is to be declined (*factor*).

FV(*rate*,*nper*,*pmt*,*pv*,*type*)

Returns the future value of an investment. If *pv* or *type* is omitted, the value 0 is used.

IPMT(*rate*,*per*,*nper*,*pv*,*fv*,*type*)

Returns the interest payment for a given period (*per*) for an investment based on periodic, constant payments and a constant interest rate. If *fv* or *type* is omitted, 0 is used.

IRR(*values*,*guess*)

Returns the internal rate of return for a series of periodic cash flows. The internal rate of return is the interest rate received for an investment consisting of payments (negative values) and incomes (positive values) that occur at regular periods.

`MIRR(`*values*`,`*finance_rate*`,`*reinvest_rate*`)`

Returns modified internal rate of return for a series of periodic cash flows. Considers both cost of the investment, *finance_rate*, and interest received on reinvestment of cash, *reinvest_rate*.

`NPER(`*rate*`,`*pmt*`,`*pv*`,`*fv*`,`*type*`)`

Returns the number of periods for an investment based on periodic, constant payments and a constant interest rate.

`NPV(`*rate*`,`*value1*`,`*value2*`,...)`

Returns the net present value of an investment based on a series of periodic cash flows and a discount rate equal to *rate*.

`PMT(`*rate*`,`*nper*`,`*pv*`,`*fv*`,`*type*`)`

Returns payment for an investment based on periodic, constant payments and a constant interest rate.

`PPMT(`*rate*`,`*per*`,`*nper*`,`*pv*`,`*fv*`,`*type*`)`

Returns the payment on the principal for a given period for an investment based on periodic, constant payments and a constant interest rate.

`PV(`*rate*`,`*nper*`,`*pmt*`,`*fv*`,`*type*`)`

Returns the present value of an investment based on periodic, constant payments and a constant interest rate.

`RATE(`*nper*`,`*pmt*`,`*pv*`,`*fv*`,`*type*`,`*guess*`)`

Returns the interest rate per period for an annuity.

`SLN(`*cost*`,`*salvage*`,`*life*`)`

Returns straight-line depreciation of an asset for a single period.

`SYD(`*cost*`,`*salvage*`,`*life*`,`*per*`)`

Returns sum-of-years' digits depreciation of an asset for a specified period.

`VDB(`*cost*`,`*salvage*`,`*life*`,`*start_period*`,`*end_period*`,`*factor*`,`*no_switch*`)`

Returns the depreciation of an asset for a length of time specified by *start_period* and *end_period* using a variable declining balance method.

Date and Time Functions

Microsoft Excel stores dates as serial numbers. The date and time functions either translate a serial number into a recognized unit of time or the reverse.

`DATE(`*year*`,`*month*`,`*day*`)`

Returns the serial number of the specified date.

`DATEVALUE(`*date_text*`)`

Returns the serial number of *date_text*. Use DATEVALUE to convert a date represented by text to a serial number.

`DAY(`*serial_number*`)`

Returns the day of the month corresponding to *serial_number*. The day is given as an integer from 1 to 31.

`DAYS360(`*start_date*`,`*end_date*`)`

Returns the number of days between two dates based on a 360-day year (12 months, each with 30 days). To calculate the difference between two dates based on a 365-day year, use normal subtraction ("12/31/91"–"1/1/91" = 364).

`HOUR(`*serial_number*`)`

Returns the hour corresponding to *serial_number*. The hour is given as an integer, ranging from 0 (12:00 AM) to 23 (11:00 PM).

`MINUTE(`*serial_number*`)`

Returns the minute corresponding to *serial_number*. The minute is given as an integer ranging from 0 to 59.

`MONTH(`*serial_number*`)`

Returns the month corresponding to *serial_number*. The month is given as an integer from 1 to 12.

`NOW()`

Returns the serial number of the current date and time, according to your computer's clock. You must include the empty parentheses.

`SECOND(`*serial_number*`)`

Returns the second corresponding to *serial_number*. The second is given as an integer, ranging from 0 to 59.

`TIME(`*hour*`,`*minute*`,`*second*`)`

Returns the serial number of the specified time.

`TIMEVALUE(`*time_text*`)`

Returns the serial number of the time specified by *time_text*.

`TODAY()`

Returns the serial number of the current date according to your computer's clock. You must include the empty parentheses.

`WEEKDAY(`*serial_number*`)`

Returns the day of the week corresponding to a specified *serial_number*. The day is given as an integer from 1 to 7, where 1 equals Sunday.

`YEAR(`*serial_number*`)`

Returns the year corresponding to a specified *serial_number*. The year is given as an integer from 1900 to 2078.

Math and Trig Functions

Several of the trig functions use or return angle values, which are always assumed to be in *radians*. If you want to use *degrees*, you can convert the values.

- To convert an argument from degrees to radians, multiply it by `PI()/180`.
- To convert a result from radians to degrees, multiply it by `180/PI()`.

`ABS(`*number*`)`

Returns the absolute value of *number*. The absolute value of a number is the number without its sign.

`ACOS(`*number*`)`

Returns the arccosine of *number* in radians from 0 to π. The arccosine is the angle whose cosine is *number*.

`ACOSH(`*number*`)`

Returns the inverse hyperbolic cosine of *number*. *number* must be greater than or equal to 1.

`ASIN(`*number*`)`

Returns the arcsine of number in radians from $-\pi/2$ to $\pi/2$. The arcsine is the angle whose sine is *number*.

`ASINH(`*number*`)`

Returns the inverse hyperbolic sine of *number*.

`ATAN(`*number*`)`

Returns the arctangent of *number* in radians from $-\pi/2$ to $\pi/2$.

`ATAN2(`*x_num*`,`*y_num*`)`

Returns the arctangent of the x and y coordinates represented by *x_num* and *y_num*. The angle is given in radians from $-\pi$ to π, excluding $-\pi$.

`ATANH(`*number*`)`

Returns the inverse hyperbolic tangent of *number*. *number* must be greater than -1 and less than 1.

`CEILING(`*number*`,`*significance*`)`

Returns *number* rounded up to the nearest multiple of *significance*. For example, =CEILING(4.42,0.05) rounds $4.42 up to the nearest nickel.

`COMBIN(`*number*`,`*number_chosen*`)`

Returns the number of ways that *number_chosen* objects can be selected from *number* objects, without regard for order. Use COMBIN to determine the total possible number of groups for a given number of objects.

`COS(`*number*`)`

Returns the cosine of the angle *number* in radians.

`COSH(`*number*`)`

Returns the hyperbolic cosine of *number*.

`EVEN(`*number*`)`

Returns *number* rounded up to the nearest even integer.

`EXP(`*number*`)`

Returns *e* raised to the power of *number*. The constant *e* equals 2.71828182845904, the base of the natural logarithm.

`FACT(`*number*`)`

Returns the factorial of *number*.

`FLOOR(`*number*`,`*significance*`)`

Rounds *number* down to the nearest multiple of *significance*.

`INT(`*number*`)`

Rounds *number* down to nearest integer. Negative numbers are rounded away from zero.

`LN(`*number*`)`

Returns the natural logarithm of *number*. Natural logarithms are based on the constant *e* (2.71828182845904). LN is the inverse of the EXP function.

`LOG(`*number*`,`*base*`)`

Returns the logarithm of *number* to *base*. If *base* is omitted, 10 is used.

`LOG10(`*number*`)`

Returns the base 10 logarithm of number.

`MDETERM(`*array*`)`

Returns the matrix determinant value of *array*, where *array* must be a numeric array with an equal number of rows and columns. Generally used for solving systems of mathematical equations that involve several variables.

`MINVERSE(`*array*`)`

Returns the inverse matrix for the matrix stored in *array*, where *array* must be a square array containing numbers. Generally used for solving systems of mathematical equations that involve several variables.

`MMULT(`*array1*`,`*array2*`)`

Returns the matrix product of *array1* and *array2*. The result is an array with same number of rows as *array1* and same number of columns as *array2*.

`MOD(`*number*`,`*divisor*`)`

Returns the remainder (modulus) after *number* is divided by *divisor*.

`ODD(`*number*`)`

Returns *number* rounded up to the nearest odd integer.

`PI()`

Returns the number 3.14159 . . . , the mathematical constant π, accurate to 15 decimal places. You must include the empty parentheses.

`PRODUCT(`*number1*`,`*number2*`,...)`

Returns the product of all the numbers given as arguments. Can have from 1 to 30 arguments. All text, logical, or blank arguments are ignored.

`RAND()`

Returns an evenly distributed random number greater than or equal to 0 but less than 1. You must include the empty parentheses.

`ROUND(`*number*`,`*num_digits*`)`

Rounds *number* to *num_digits* decimal places (negative *num_digits* rounds to the left of the decimal).

`SIGN(`*number*`)`

Returns +1 or −1 representing the sign of *number*.

`SIN(`*number*`)`

Returns the sine of the angle *number* in radians.

`SINH(`*number*`)`

Returns the hyperbolic sine of *number*.

`SQRT(`*number*`)`

Returns the positive square root of *number*. If *number* is negative, returns the error value #NUM!.

`SUM(`*number1*`,`*number2*`,...)`

Returns total of all numbers included as arguments.

`SUMPRODUCT(`*array1*`,`*array2*`,`*array3*`,...)`

Multiplies corresponding components in the given arrays and returns the sum of those products.

`SUMSQ(`*number1*`,`*number2*`,...)`

Returns the sum of the squares of the arguments.

`SUMX2MY2(`*array_x*`,`*array_y*`)`

Returns the sum of the differences of squares of corresponding values in two arrays.

`SUMX2PY2(`*array_x*`,`*array_y*`)`

Returns the sum of the sum of squares of corresponding values in two arrays. The sum of the sum of squares is a common term in many statistical calculations.

`SUMXMY2(`*array_x*`,`*array_y*`)`

Returns the sum of squares of differences of corresponding values in two arrays.

`TAN(`*number*`)`

Returns the tangent of the angle *number* in radians.

`TANH(`*number*`)`

Returns the hyperbolic tangent of *number*.

`TRANSPOSE(`*array*`)`

Returns the transpose of *array*. To form the transpose of an array, Microsoft Excel uses the first row of the array as the first column of the

new array, uses the second row of the array as the second column of the new array, and so on. (Listed in "Lookup & Reference" category.)

`TRUNC(`*number*`,`*num_digits*`)`

Rounds *number* down to nearest integer or nearest specified *num_digits* decimal places.

Statistical Functions

`AVEDEV(`*number1*`,`*number2*`,...)`

Returns the average of the absolute deviations of data points from their mean. AVEDEV is a measure of the variability in a data set.

`AVERAGE(`*number1*`,`*number2*`,...)`

Returns the average (arithmetic mean) of the arguments.

`BETADIST(`*x*`,`*alpha*`,`*beta*`,`*A*`,`*B*`)`

Returns the cumulative beta probability density function. The cumulative beta probability density function is commonly used to study variation in the percentage of something across samples.

`BETAINV(`*probability*`,`*alpha*`,`*beta*`,`*A*`,`*B*`)`

Returns the inverse of the cumulative beta probability density function. That is, if *probability* = BETADIST(*x*,...), then BETAINV(*probability*,...) = *x*. The cumulative beta distribution can be used in project planning to model probable completion times given an expected completion time and variability.

`BINOMDIST(`*number_s*`,`*trials*`,`*probability_s*`,`*cumulative*`)`

Returns the individual term binomial distribution probability. Use BINOMDIST in problems with a fixed number of tests or trials, when the outcomes of any trial are only success or failure, when trials are independent, and when the probability of success is constant throughout the experiment.

CHIDIST(*x*,*degrees_freedom*)

Returns the one-tailed probability of the chi-squared (χ^2) distribution. The chi-squared distribution is associated with a chi-squared test. Use the chi-squared test to compare observed and expected values.

CHIINV(*probability*,*degrees_freedom*)

Returns the inverse of the chi-squared (χ^2) distribution. Use the chi-squared distribution to compare observed results with expected ones to decide if your original hypothesis is valid.

CHITEST(*actual_range*,*expected_range*)

Returns the test for independence. CHITEST returns the value from the chi-squared (χ^2) distribution for the statistic and the appropriate degrees of freedom. You can use chi-squared tests to determine if hypothesized results are verified by an experiment.

CONFIDENCE(*alpha*,*standard_dev*,*size*)

Returns the confidence interval for a population mean. The confidence interval is a range on either side of a sample mean.

CORREL(*array1*,*array2*)

Returns the correlation coefficient of the given arrays. Use the correlation coefficient to determine the relationship between two properties.

COUNT(*value1*,*value2*,...)

Counts how many numbers are in a list of arbitrary arguments.

COUNTA(*value1*,*value2*,...)

Counts the number of nonblank values in the list of arbitrary arguments.

COVAR(*array1*,*array2*)

Returns covariance, the average of the products of deviations for each data point pair. Use covariance to determine the relationship between two data sets.

CRITBINOM(*trials*,*probability_s*,*alpha*)

Returns the smallest integer k for which the cumulative binomial distribution function is greater than or equal to the criterion value *alpha*. Use this function for quality assurance applications.

DEVSQ(*number1*,*number2*,...)

Returns the sum of squares of deviations of data points from their sample mean.

EXPONDIST(*x*,*lambda*,*cumulative*)

Returns the exponential distribution function. Use EXPONDIST to model the time between events, such as how long an automated bank teller takes to deliver cash.

FDIST(*x*,*degrees_freedom1*,*degrees_freedom2*)

Returns the F probability distribution. You can use this function to determine whether two data sets have different degrees of diversity.

FINV(*probability*,*degrees_freedom1*,*degrees_freedom2*)

Returns the inverse of the F probability distribution. The F distribution can be used in an F-test which compares the degree of variability in two data sets.

FISHER(*x*)

Returns the Fisher transformation at *x*. This transformation produces a function that is approximately normally distributed rather than skewed. Use this function to perform hypothesis testing on the correlation coefficient.

FISHERINV(*y*)

Returns the inverse of the Fisher transformation. Use this transformation when analyzing correlations between ranges or arrays of data.

FORECAST(*x*,*known_y's*,*known_x's*)

Returns a predicted value for *x* based on a linear regression of known x- and y-arrays or ranges of data. You can use this function to predict future sales, inventory requirements, or consumer trends.

FREQUENCY(*data_array*,*bins_array*)

Returns a frequency distribution as a vertical array.

FTEST(*array1*,*array2*)

Returns the results of an F-test. An F-test returns the one-tailed probability that the variances in *array1* and *array2* are not significantly

different. Use this function to determine if two samples have different variances.

`GAMMADIST(`*x*`,`*alpha*`,`*beta*`,`*cumulative*`)`

Returns the gamma distribution function. You can use this function to study variables that may have a skewed distribution. The gamma distribution is commonly used in queuing analysis.

`GAMMAINV(`*probability*`,`*alpha*`,`*beta*`)`

Returns the inverse of the gamma cumulative distribution function. You can use this function to study a variable whose distribution may be skewed.

`GAMMALN(`*x*`)`

Returns the natural logarithm of the gamma function, $\Gamma(x)$.

`GEOMEAN(`*number1*`,`*number2*`,...)`

Returns the geometric mean of an array or range of positive data.

`GROWTH(`*known_y's*`,`*known_x's*`,`*new_x's*`,`*const*`)`

Fits an exponential curve to *known_y's* and *known_x's*. Returns y-values along that curve for the *new_x's*.

`HARMEAN(`*number1*`,`*number2*`,...)`

Returns the harmonic mean of a data set. The harmonic mean is the reciprocal of the arithmetic mean of reciprocals.

`HYPGEOMDIST(`*sample_s*`,`*number_sample*`,`*population_s*`,`*number_population*`)`

Returns the hypergeometric distribution, the probability of a given number of sample successes, given the sample size, population successes, and population size. Use HYPGEOMDIST for problems with a finite population, where each observation is either a success or a failure, and where each subset of a given size is chosen with equal likelihood.

`INTERCEPT(`*known_y's*`,`*known_x's*`)`

Returns the intercept of the linear regression line through data points in *known_x's* and *known_y's*. The intercept is the point at which the regression line through the values in *known_x's* and *known_y's* intersects the y-axis. Use the intercept when you want to determine the value of the dependent variable when the independent variable is zero.

KURT(*number1*,*number2*,...)

Returns the kurtosis of a data set. Kurtosis characterizes the relative peakedness or flatness of a distribution compared to the normal distribution (positive indicates relatively peaked, negative relatively flat).

LARGE(*array*,*k*)

Returns the *k*-th largest value in a data set. You can use this function to select a value based on its relative standing.

LINEST(*known_y's*,*known_x's*,*const*,*stats*)

Fits a straight line to your data and returns an array that describes that line (the coefficients and constant). LINEST uses the method of least squares for determining the best fit for the data.

LOGEST(*known_y's*,*known_x's*,*const*,*stats*)

Fits an exponential curve to the arrays *known_y's* and *known_x's*. Returns a horizontal array that describes that curve (the bases and constant).

LOGINV(*probability*,*mean*,*standard_dev*)

Returns the inverse of the lognormal cumulative distribution function of x. Use the lognormal distribution to analyze logarithmically transformed data.

LOGNORMDIST(*x*,*mean*,*standard_dev*)

Returns the lognormal cumulative distribution function of x, where $\ln(x)$ is normally distributed with parameters *mean* and *standard_dev*. Use this function to analyze data that has been logarithmically transformed.

MAX(*number1*,*number2*,...)

Returns the largest number in the list of arguments.

MEDIAN(*number1*,*number2*,...)

Returns the middle value of the arguments.

MIN(*number1*,*number2*,...)

Returns the smallest number in the list of arguments.

MODE(*number1*,*number2*,...)

Returns the most frequently occurring value in an array or range of data.

NEGBINOMDIST(*number_f*,*number_s*,*probability_s*)

Returns the negative binomial distribution, the probability that there will be *number_f* failures before the success numbered *number_s*, when the constant probability of a success is *probability_s*. This function is similar to the binomial distribution, except that the number of successes is fixed and the number of trials is variable.

NORMDIST(*x*,*mean*,*standard_dev*,*cumulative*)

Returns the normal cumulative distribution function for the specified mean and standard deviation. This function has a very wide range of applications in statistics, including hypothesis testing.

NORMINV(*probability*,*mean*,*standard_dev*)

Returns the inverse of the normal cumulative distribution for the specified mean and standard deviation.

NORMSDIST(*z*)

Returns the standard normal cumulative distribution function. The distribution has a mean of zero and a standard deviation of one.

NORMSINV(*probability*)

Returns the inverse of the standard normal cumulative distribution. The distribution has a mean of zero and a standard deviation of one.

PEARSON(*array1*,*array2*)

Returns the Pearson product moment correlation coefficient, *r*, a dimensionless index that ranges from −1.0 to 1.0 inclusive, and reflects the extent of a linear relationship between two data sets.

PERCENTILE(*array*,*k*)

Returns the value from *array* at the *k*-th percentile. You can use this function to establish a threshold of acceptance.

PERCENTRANK(*array*,*x*,*significance*)

Returns the percentage rank of *x* among the values in *array*. This function can be used to evaluate the relative standing of an observation in a data set.

`PERMUT(`*number*`,`*number_chosen*`)`

Returns the number of permutations of groups of *number_chosen* objects that can be selected from *number* objects. A permutation is any set or subset of objects or events where internal order is significant. Use this function for lottery-style probability calculations.

`POISSON(`*x*`,`*mean*`,`*cumulative*`)`

Returns the Poisson probability distribution. A common application of the Poisson distribution is predicting the number of events over a specific time.

`PROB(`*x_range*`,`*prob_range*`,`*lower_limit*`,`*upper_limit*`)`

Returns the probability that values in *x_range* (having the probabilities in *prob_range*) are between the *lower_limit* and *upper_limit*. If *upper_limit* is not supplied, returns the probability that values in *x_range* are equal to *lower_limit*.

`QUARTILE(`*array*`,`*quart*`)`

Returns a quartile from the data points in *array*. Quartiles often are used in sales and survey data to divide populations into groups.

`RANK(`*number*`,`*ref*`,`*order*`)`

Returns the rank of a number in a list of numbers. The rank of a number is its size relative to other values in a list. (If you were to sort the list, the rank of the number would be its position.)

`RSQ(`*known_y's*`,`*known_x's*`)`

Returns the r^2 value of the linear regression line through data points in *known_y's* and *known_x's*. The r^2 value is the square of the Pearson product moment correlation coefficient, and can be interpreted as the proportion of the variance in y attributable to the variance in x.

`SKEW(`*number1*`,`*number2*`,...)`

Returns the skewness of a distribution. Skewness characterizes the degree of asymmetry of a distribution around its mean (positive indicates an asymmetric tail extending towards positive values, negative indicates towards negative values).

SLOPE(*known_y's*,*known_x's*)

Returns the slope of the linear regression line through data points in *known_y's* and *known_x's*.

SMALL(*array*,*k*)

Returns the k-th smallest value in a data set. Use this function to return values with a particular relative standing in a data set.

STANDARDIZE(*x*,*mean*,*standard_dev*)

Returns a normalized value from a distribution characterized by *mean* and *standard_dev*.

STDEV(*number1*,*number2*,...)

Returns an estimate for the standard deviation of a population based on the population sample provided in the list of arguments. Use when you have data for a sample of the population. If you have data for the whole population, use STDEVP.

STDEVP(*number1*,*number2*,...)

Returns the standard deviation of an entire population based on a list of arguments. Use when you have data for the entire population. If you have data for a sample, use STDEV.

STEYX(*known_y's*,*known_x's*)

Returns the standard error of the regression. The standard error is a measure of the amount of error in the prediction of y for an individual x.

TDIST(*x*,*degrees_freedom*,*tails*)

Returns the Student's t-distribution. The t-distribution is used in the hypothesis testing of small sample data sets.

TINV(*probability*,*degrees_freedom*)

Returns the inverse of the Student's t-distribution for the specified degrees of freedom.

TREND(*known_y's*,*known_x's*,*new_x's*,*const*)

Fits a linear trend (a straight line using the method of least squares) to arrays *known_y's* and *known_x's*. Returns y-values along that line for the array of *new_x's*.

`TRIMMEAN(`*array*`,`*percent*`)`

Returns the mean taken by excluding a percentage of data points from the top and bottom tails of a data set. You can use this function when you wish to exclude outlying data from your analysis.

`TTEST(`*array1*`,`*array2*`,`*tails*`,`*type*`)`

Returns the probability associated with a Student's t-Test. Use TTEST to determine whether two samples are likely to have come from the same two underlying populations that have the same mean.

`VAR(`*number1*`,`*number2*`,...)`

Returns an estimate for the variance of a population based on the population sample provided in the list of arguments. Use when you have data for a sample of the population. If you have data for the entire population, use VARP.

`VARP(`*number1*`,`*number2*`,...)`

Returns the variance for an entire population, based on the list of arguments. Use when you have data for the entire population. If you have data for a sample, use VAR.

`WEIBULL(`*x*`,`*alpha*`,`*beta*`,`*cumulative*`)`

Returns the Weibull distribution. Use this distribution in reliability analysis, such as calculating a device's mean time to failure.

`ZTEST(`*array*`,`*x*`,`*sigma*`)`

Returns the two-tailed P-value of a z-test. The z-test generates a standard score for *x* with respect to the data set, *array*, and returns the two-tailed probability for the normal distribution. You can use this function to assess the likelihood that a particular observation is drawn from a particular population.

Lookup and Reference Functions

ADDRESS(*row_num*,*column_num*,*abs_num*,*a1*,*sheet_text*)

Returns a reference as text for a single cell specified by *row_num* and *column_num*. *abs_num* specifies the type of reference (1=absolute/default, 2=absolute-row relative-column, 3=relative-row absolute-column, 4=relative), *a1* specifies the reference style (TRUE=A1-style/default, FALSE=R1C1-style), and *sheet_text* specifies the name of the worksheet to included in an external reference.

AREAS(*reference*)

Returns the number of areas in *reference*. An area is a single cell or a range of cells. *reference* can be a reference to multiple areas.

CHOOSE(*index_num*,*value1*,*value2*,...)

Uses *index_num* to select a value from the list of value arguments.

COLUMN(*reference*)

Returns the row number of *reference* (for a single cell or range of cells in a single column) or a horizontal array of column numbers (for a range of cells covering several columns). If *reference* is omitted, the cell containing the COLUMN function is used.

COLUMNS(*array*)

Returns the number of columns in *array*.

HLOOKUP(*lookup_value*,*table_array*,*row_index_num*)

Looks in *table_array* for a column whose first row contains *lookup_value* and then moves down the column according to *row_index_num* and returns the value of the cell.

INDEX(*array*,*row_num*,*column_num*)

Returns the value of a specified cell within *array* or a specified array of values from within *array*.

`INDEX(`*reference*`,`*row_num*`,`*column_num*`,`*area_num*`)`

Returns a reference to a cell or range of cells within *reference*.

`INDIRECT(`*ref_text*`,`*a1*`)`

Returns the contents of a cell or reference specified by *ref_text*. *a1* specifies the reference style (TRUE=A1-style/default, FALSE=R1C1-style).

`LOOKUP(`*lookup_value*`,`*lookup_vector*`,`*result_vector*`)`

Syntax 1: Looks in *lookup_vector* for *lookup_value* and then moves to the corresponding position in *result_vector* and returns this value. A vector is an array that contains only one row or one column.

`LOOKUP(`*lookup_value*`,`*array*`)`

Syntax 2: Looks in the first row or column of *array* for *lookup_value*, moves down or across to the last cell and returns the value of the cell. (This form is provided for compatibility with other worksheet programs.)

`MATCH(`*lookup_value*`,`*lookup_array*`,`*match_type*`)`

Returns the relative position of the element in *lookup_array* that matches the *lookup_value*, according to the *match_type*. *match_type* specifies how *lookup_array* is ordered and how the matching occurs (1=array in ascending order, finds largest value less than or equal to *lookup_value*, default; 0=array in any order, finds first value exactly equal to *lookup_value*; −1=array in descending order, finds smallest value greater than or equal to *lookup_value*).

`OFFSET(`*reference*`,`*rows*`,`*cols*`,`*height*`,`*width*`)`

Returns a reference of a specified *height* and *width*, offset from *reference* by a specified number of *rows* and *cols*.

`ROW(`*reference*`)`

Returns the row number of *reference* (for a single cell or range of cells in a single row) or a vertical array of row numbers (for a range of cells covering several rows). If *reference* is omitted, the cell containing the ROW function is used.

`ROWS(`*array*`)`

Returns the number of rows in *array*.

`TRANSPOSE(`*array*`)`

Returns the transpose of *array*. To form the transpose of an array, Microsoft Excel uses the first row of the array as the first column of the new array, uses the second row of the array as the second column of the new array, and so on.

`VLOOKUP(`*lookup_value*`,`*table_array*`,`*col_index_num*`)`

Looks in *table_array* for a row whose first column contains *lookup_value*, and then moves across the row according to *col_index_num* and returns the value of the cell.

Database Functions

Most database functions use these three arguments:

database the range of cells that make up the database, entered either as an unquoted name or as a cell range.

field the field to use in the calculation, entered either as a text name or as a field number.

criteria the range of cells that make up the selection criteria, entered either as an unquoted name or as a cell range. Specify *database* to select the complete database.

`CROSSTAB(`*label*`,`*expression*`)`
`CROSSTAB(`*label*`,"Columns:",`*columns_array*`)`
`CROSSTAB(`*label*`,"Rows:",`*rows_array*`)`
`CROSSTAB(`*label*`,"Summary:",`*values_array*`,`*create_outline*`,`*create_names*`,`*multiple_values*`)`

Defines the structure and content of a cross-tabulation table.

`DAVERAGE(`*database*`,`*field*`,`*criteria*`)`

Averages the values in the *field* column for records that satisfy the *criteria*.

DCOUNT(*database*,*field*,*criteria*)

Returns the number of values that are numbers in the *field* column for records that satisfy the *criteria*.

DCOUNTA(*database*,*field*,*criteria*)

Returns the number of values that are nonblank in the *field* column for records that satisfy the *criteria*.

DGET(*database*,*field*,*criteria*)

Returns the value of the *field* cell in the single record that satisfies the *criteria*.

DMAX(*database*,*field*,*criteria*)

Returns the largest number from the specified *field* column for records that satisfy the *criteria*.

DMIN(*database*,*field*,*criteria*)

Returns the smallest number from the specified *field* column for records that satisfy the *criteria*.

DPRODUCT(*database*,*field*,*criteria*)

Multiplies the values in the *field* column for records that satisfy the *criteria*.

DSTDEV(*database*,*field*,*criteria*)

Estimates the standard deviation of a population based on a sample. Uses the numbers in the *field* column for records that satisfy the *criteria*.

DSTDEVP(*database*,*field*,*criteria*)

Calculates the standard deviation of a population based on the entire population. Uses the numbers in the *field* column for records that satisfy the *criteria*.

DSUM(*database*,*field*,*criteria*)

Adds the numbers in the *field* column for records that satisfy the *criteria*.

DVAR(*database*,*field*,*criteria*)

Estimates the variance of a population based on a sample. Uses *database* values in *field* column for records that satisfy the *criteria*.

DVARP(*database*,*field*,*criteria*)

Calculates the variance of a population based on the entire population. Uses the values in the *field* column for records that satisfy the *criteria*.

Text Functions

CHAR(*number*)

Returns the ANSI character corresponding to the code *number*.

CLEAN(*text*)

Removes all nonprintable characters from *text*.

CODE(*text*)

Returns the numeric ANSI code of the first character in *text*.

DOLLAR(*number*,*decimals*)

Converts *number* to text using currency format with the decimals rounded. *decimals* specifies the numbers of decimal places (2 is default, negative rounds to the left of the decimal). The default format is $#,##0.00_);($#,##0.00).

EXACT(*text1*,*text2*)

Returns the logical value TRUE if *text1* and *text2* are exactly the same; otherwise, returns FALSE. EXACT is case-sensitive but ignores formatting differences.

FIND(*find_text*,*within_text*,*start_at_num*)

Finds *find_text* within *within_text*, starting the search at the character specified by *start_at_num*. Returns the number of the character at which *find_text* first occurs.

FIXED(*number*,*decimals*,*no_commas*)

Converts *number* to text with the decimals rounded. *decimals* specifies the numbers of decimal places (2 is default, negative rounds to the left of the decimal), and *no_commas* specifies whether comma separators are included (TRUE=no commas, FALSE=commas/default).

`LEFT(`*text*`,`*num_chars*`)`

Returns text consisting of the first *num_chars* characters in *text*.

`LEN(`*text*`)`

Returns the number of characters in *text*. Letters, spaces, punctuation marks, and numbers are counted as characters.

`LOWER(`*text*`)`

Returns *text* in lowercase letters. Characters in *text* that are not letters are unchanged.

`MID(`*text*`,`*start_num*`,`*num_chars*`)`

Returns text string from within *text*, starting with the character at *start_num* and having a length of *num_chars*.

`PROPER(`*text*`)`

Capitalizes the first letter of each word in *text* and any other letters in *text* that follow any character other than a letter. Converts all other letters to lowercase. Characters in *text* that are not letters are unchanged.

`REPLACE(`*old_text*`,`*start_num*`,`*num_chars*`,`*new_text*`)`

Removes *num_chars* characters from *old_text* starting at *start_num*, and then replaces them with *new_text*.

`REPT(`*text*`,`*number_times*`)`

Repeats *text* a specified *number_times* to make a new text value. The result cannot be longer than 255 characters.

`RIGHT(`*text*`,`*num_chars*`)`

Returns the last *num_chars* characters in *text*.

`SEARCH(`*find_text*`,`*within_text*`,`*start_num*`)`

Searches for *find_text* within *within_text* and returns the number of the character at which *find_text* first occurs. Ignores case distinctions. Starts search at character specified by *start_num*. First character in *within_text* is character number 1.

`SUBSTITUTE(`*text*`,`*old_text*`,`*new_text*`,`*instance_num*`)`

Substitutes *new_text* for *old_text* in *text*. If you specify *instance_num*, only that instance of *old_text* is replaced. Otherwise, every *old_text* in *text* is changed to *new_text*.

`T(`*value*`)`

Returns the text referred to by *value*. If *value* does not refer to text, returns "" (empty text).

`TEXT(`*value*`,`*format_text*`)`

Converts *value* to text using the format specified by *format_text*.

`TRIM(`*text*`)`

Removes all spaces from text, except for one space between words.

`UPPER(`*text*`)`

Returns *text* in uppercase letters. Characters in *text* that are not letters are unchanged.

`VALUE(`*text*`)`

Converts *text* to a number.

Logical Functions

`AND(`*logical1*`,`*logical2*`,...)`

Returns the logical value TRUE if all arguments are true. If any argument is false, returns FALSE.

`FALSE()`

Returns the logical value FALSE. You must include the empty parentheses.

`IF(`*logical_test*`,`*value_if_true*`,`*value_if_false*`)`

Returns *value_if_true* if *logical_test* is TRUE. Returns *value_if_false* if *logical_test* is FALSE. The default values are TRUE and FALSE. Use IF to make conditional tests of cell values and formulas.

`NOT(`*logical*`)`

Changes the value of *logical* from TRUE to FALSE, or from FALSE to TRUE.

`OR(`*logical1*`,`*logical2*`,...)`

Returns logical value TRUE if any argument is true. Returns FALSE if all arguments are false.

`TRUE()`

Returns the logical value TRUE. You must include the empty parentheses.

Information Functions

`CELL(`*info_type*`,`*reference*`)`

Returns information about the formatting, location, or contents of the upper-left cell in *reference* (the default is the active cell). *info_type* is text that specifies the type of cell information (for example, "address", "col", "contents", "format", "row").

`ERROR.TYPE(`*error_val*`)`

Returns the number corresponding to an Microsoft Excel error value. *error_val* is usually a reference to another cell, and the result can be used as an argument to IF to make a conditional calculation.

`INFO(`*type_text*`)`

Returns information about the current operating environment. *type_text* specifies the type of information you want (for example, "directory", "memavail", "numfile").

`ISBLANK(`*value*`)`

Returns TRUE if *value* refers to an empty cell; otherwise returns FALSE.

`ISERR(`*value*`)`

Returns TRUE if *value* is any error value except #N/A; otherwise returns FALSE.

`ISERROR(`*value*`)`

Returns TRUE if *value* is any error value: #N/A, #VALUE!, #REF!, #DIV/0!, #NUM!, #NAME?, or #NULL!; otherwise returns FALSE.

`ISLOGICAL(`*value*`)`

Returns TRUE if *value* is a logical value; otherwise returns FALSE.

`ISNA(`*value*`)`

Returns TRUE if *value* is the error value #NA (no value available); otherwise returns FALSE.

`ISNONTEXT(`*value*`)`

Returns TRUE if *value* is not text; otherwise returns FALSE.

`ISNUMBER(`*value*`)`

Returns TRUE if *value* is a number; otherwise returns FALSE.

`ISREF(`*value*`)`

Returns TRUE if *value* is a reference; otherwise returns FALSE.

`ISTEXT(`*value*`)`

Returns TRUE if *value* is text; otherwise returns FALSE.

`N(`*value*`)`

If *value* is a number, returns that number; if *value* is a date, returns the serial number of that date; if *value* is TRUE, returns 1; otherwise, returns zero. Provided for compatibility with other worksheet programs.

`NA()`

Returns #N/A, which indicates "No value is available." Provided for compatibility with other worksheet programs. You must include the empty parentheses. (You can also enter #N/A directly into a cell.)

`TYPE(`*value*`)`

Returns a number indicating the type of *value* (1=number, 2=text, 4=logical, 16=error value, 64=array).

Worksheet Functions Listed by Category

If Things Go Wrong

If Things Go Wrong

If you run into problems using Microsoft Excel on your OmniBook, you can use the suggestions in this chapter for getting back on track. Also check the contents and index for references for related information.

If you have problems that may not be limited to Microsoft Excel, see the OmniBook *Operating Guide*, especially chapter 11. For example, printer problems are discussed in detail there.

If you have questions that the OmniBook manuals don't answer, you can check these additional sources:

- Look at the Microsoft Excel online Help.
- See other books about Microsoft Excel, such as those listed under "Finding Other Learning Sources" in the introduction.
- Contact Hewlett-Packard at the address or phone number on the inside back cover of this manual.

Problem-Solving

Throughout the following sections you'll find descriptions of common Microsoft Excel problems as well as suggestions for overcoming them. These problem-solving sections are dividing into the following topics:

- Data-entry problems.
- Editing problems.
- Formatting problems.
- Formula problems.
- Database problems.
- Chart problems.
- File problems.
- Printing problems.
- Workbook problems.
- Macro problems.
- Linking and embedding problems.

Data-Entry

If pound signs (###) fill the cell after you enter the number or formula

The value you entered or the value of the formula is too large to fit into the displayed cell. You can make the cell large enough to hold the number by adjusting the column width.

- Double-click the line to the right of the column heading of the column that contains the cell. Microsoft Excel adjusts the column width to fit all of the cell entries.

If dates or times are left-aligned

If Microsoft Excel doesn't recognize a date or time format you type, or if you enter a nonexistent date, such a 3/40/93, it stores the data as text instead of as a serial number. Dates and times that are stored as text are aligned to the left of the cell and return the #VALUE! error when used in calculations.

- Check your typing to make sure that the dates are genuine.
- Assign a built-in date or time format to the cells—see "To assign a built-in number, date, or time format" on page 4-4.

If a function you typed remains lowercase

If Microsoft Excel doesn't convert a function name to uppercase letters when you enter the formula, the function is not valid.

- Check the function for typing errors.

If a formula returns the #NAME? error value

Formulas return the #NAME? error value when a specified name can't be found.

- Check for typing errors in the formula.
- Be sure you created the name you are trying to use or have not deleted the name from the worksheet.
- Be sure you didn't omit double quotation marks around text. Microsoft Excel interprets unquoted text in a formula as a name.

Editing

If cells won't move by dragging

If you can't drag and drop cells, the Cell Drag And Drop check box in the Workspace Options dialog box may not be selected.

1. From the Options menu, choose Workspace.
2. Select the Cell Drag and Drop check box.
3. Choose OK.

If you can't paste with a paste area of a single cell

If you select only the upper-left corner of the paste area and Microsoft Excel displays a message and doesn't paste the cells, the copy area is too big to fit in the paste area.

- Select a paste area closer to the beginning of the worksheet.
  -or-
  Copy a smaller range of cells.

Formatting

If pound signs (###) fill the cell after you apply a format

The number you've formatted is too big to fit into the displayed cell. You can make the cell large enough to hold the number by adjusting the column width.

- Double-click the line to the right of the column heading of the column that contains the cell. Microsoft Excel adjusts the column width to fit all of the cell entries.

If text isn't centered across columns

- Make sure you select the entire range across which you want to center the text before you click the Center Across Columns button.

If cells can't be selected with the Define Name dialog box open

In order to enter cell references by selecting them on the worksheet, the Refers To box must be active.

- Select all or part of the current contents of the Refers To box before you select the cells on the worksheet.

Formulas

If a formula results in an error value

Microsoft Excel displays an error value in a cell when it can't properly calculate the formula for that cell. Error values always begin with the pound sign (#). The following table summarizes some of the common causes and offers suggestions for correcting them.

Error	Possible Causes	Suggested Corrections
#DIV/0!	(A formula is trying to divide by 0)	
	Using a reference to a blank cell or a cell containing 0 as a divisor.	Change the reference or enter a nonzero value in the cell used as a divisor.
	Entering a formula that contains explicit division by 0.	Correct the formula.
#N/A	(No value is available)	
	Omitting one or more arguments to a built-in or custom worksheet function.	Enter all arguments in the function.
	Using a reference to a cell containing #N/A instead of data.	Update the data in the cell—or leave as is to show absence of valid data.
#NAME?	(A name isn't recognized)	
	Deleting or failing to define the name.	Define the name.
	Misspelling the name or the name of a function.	Correct the spelling. You can use the Paste Name or Paste Function command on the Formula menu to insert the correct name or function name into the formula.
	Entering text in the formula without double quotation marks (it's interpreted as a name).	Enclose the text in the formula in double quotation marks.
	Omitting a colon in a range reference.	Correct the formula.
#NULL!	(Two areas specified for an intersection don't intersect)	
	Using an incorrect range operator or incorrect cell reference.	Use the union operator (comma) if you want to refer to two areas that don't intersect. Or check for typing errors in the range specification.
#NUM!	(There is a problem with a number)	
	Using an unacceptable argument in a function that requires a numeric argument.	Correct the argument.
	Using a worksheet function that iterates, and the function isn't able to find a result that works.	Try using a different starting value for the function.
	Entering a formula that produces a number too large or too small to be represented by Microsoft Excel.	Change the formula so that its result is within the allowed range of numbers (between approximately -10^{308} and 10^{308}).
#REF!	(A cell that is not valid is referred to)	
	Deleting cells that formulas refer to or pasting moved cells over cells that formulas refer to.	Change the formulas.
#VALUE!	(An argument or operand is the wrong type)	
	Entering text where a number or logical value is required, and the text can't be translated into the correct data type.	Check the formula or function for the required operand or argument. Check referenced cells for valid values.

Databases

If numbers are sorted incorrectly

If you haven't entered all of the numbers as either numeric values or as text values, Microsoft Excel sorts the numeric values before sorting the text values.

- Make sure that all of the numbers are entered as either numeric values or as text values.

If the database can't be extended

Microsoft Excel displays a message when there is data in the row below your database range.

- Either move or delete the data below your database.

If a message tells you that your sort key isn't valid

- Make sure you select the database cells before trying to sort.

If a message tells you that the extract range is full

Your extract range isn't large enough to hold the records you're extracting.

- Redefine the extract range. To set up an unlimited extract range, select only the row containing the field names at the top of the extract range.

Charts

If only part of the chart legend shows

- Resize the chart to accommodate the legend.
  -or-
- Decrease the font size of the legend text:
  1. Double-click the chart to open it into its own window.
  2. Double-click the legend to display the patterns dialog box.
  3. Choose Font.

4. Select a smaller font size in the Size box.
5. Choose OK.

If an embedded chart's plot area is too small

If a chart's plot area doesn't fit the embedded chart properly, the plot area will appear small in comparison to the area drawn to hold the chart. For example, a square-shaped plot area will take up only a small portion of a rectangular chart area. Resize the chart area to better fit the chart.

1. Click the embedded chart to select it.
2. Drag one of the selection handles to resize the chart.

If a row or column heading appears as a data point in a chart

Microsoft Excel has read the column or row headings incorrectly.

1. Click the embedded chart to select it.
2. Click the ChartWizard button.
3. Make sure the correct range is selected.
4. Choose Next>.
5. Adjust the selections under Data Series In and Use First Column Or Row For to place the row and column headings in the correct positions. You can see a preview of the chart in the Sample Chart window.
6. Choose OK.

Files

If the file you want to open doesn't appear in the Open File dialog box

- Change the directory or drive in the dialog box.
- For a non-Excel file, select a different file type.

If a message tells you that your file name is not valid

Microsoft Excel files must be named following the same rules that apply to Windows and MS-DOS. A file name can be a maximum of eight characters followed by an optional extension of up to three characters. The name must start with a letter or number and can contain any characters except

/ [] ; . , " \ : | or space. The file name and extension are separated by a period.

- Make sure that you have typed a legal file name.

If you can't open a file with an earlier version of Microsoft Excel

- Use the latest version of Microsoft Excel to save the file—use the File menu Save As command, then in the Save File As Type box select the appropriate earlier version of Microsoft Excel.

Printing

For general printer problems that may not be specifically a Microsoft Excel problem, see "Printing" in chapter 11 of the OmniBook *Operating Guide.*

If a 3-D chart will not print on a plotter

Microsoft Excel may not be able to print your 3-D chart on an electronic pen plotter.

- Change the chart to a 2-D chart type or use a different printer.

Workbooks

If workbook contents and paging buttons aren't visible

1. Select the document window where you can't see the contents and paging buttons.
2. From the Options menu, choose Workspace.
3. Under Display, select the Scroll Bars check box.
4. Choose OK.

If an unbound document can't be found

If you move an unbound document to a different location, the next time you open the workbook, Microsoft Excel displays a message telling you it can't find the document. You need to update the workbook with the document's new location.

1. Open the document Microsoft Excel can't find.
2. Add the document to the workbook again.
3. Save the workbook.

Macros

If file operations don't work in macros

- You need to activate the File Functions add-in. Use Notepad to open C:\WINDOWS\EXCEL4.INI, then remove the ";" at the front of the FILEFNS.XLA line and save the file. Restart Microsoft Excel.

Linking and Embedding

If the source worksheet for the dependent worksheet's links can't be found

- If you've renamed a source worksheet or saved either a source or dependent worksheet in a different directory, you may have to redirect the links—see "To redirect links for a source worksheet" on page 10-6.

Index

Special characters

(errors), 3-23, 14-4, 14-5
#####, 14-3, 14-5
$ (references), 3-23
= (formulas), 3-22, 3-23
2-D charts, 8-4
3-D charts, 8-4, 8-13, 8-14, 14-9
3-D View command, 8-14

A

absolute references. *See* references
  arguments, 13-4
  description, 3-23
active cell
  description, 3-3
  entering data, 3-7
  selecting, 3-3
adding. *See* creating
  arrows, 8-11
  chart legends, 8-12
  records, 7-5
  text boxes, 5-5, 8-8
  titles (chart), 8-9
  titles (row-column), 9-10
  workbook documents, 10-12
Align button, 4-5
alignment
  data, 4-5
  in styles, 4-11
  text boxes, 5-6
  types, 4-5
Alignment command, 4-5
angles, 13-9
applications
  documents for, 2-4, 10-8
  documents from, 10-7
  links for, 10-10
  links from, 10-9
  objects for, 10-10
  objects from, 10-8, 10-9
area charts, 8-4
arguments (functions), 13-4
Arrange command, 6-4
arrays, 13-4
Arrow button, 8-11
arrows, 8-11
Ascending Sort button, 3-20
Attach Text button, 8-9
Attach Text command, 8-9
attributes, 3-16
AutoFormat command, 4-9, 4-10
automatic calculation, 3-27
AutoSave command, 2-4
AutoSum button, 3-25
axis titles, 8-9

B

backup copies, 2-5
BAK extension, 2-5
bar charts, 8-2, 8-4
best-fit trend, 3-9, 3-10
blocks of cells, 3-5
bold text, 4-3
Border command, 4-7

borders
cells, 4-7
chart legends, 8-13
in styles, 4-11
"moving", 3-15, 10-3, 10-4
bound documents, 10-11, 10-14
breaking pages, 9-8, 9-9

C

calculation, 3-27. *See also* formulas
Calculation command, 3-27
cancel box, 3-7
canceling. *See* undoing
carriage return, 4-5
cell references
arguments, 13-4
copying, 3-24
finding, 3-6
types, 3-23, 3-24
cells
applying styles, 4-11
arranging text across, 4-5, 14-5
auto-formatting, 4-9
blocks of, 3-5
borders, 4-7
circling, 4-10
clearing, 3-17, 3-18
combining data in, 3-15
copying, 3-13, 3-14, 14-4
copying attributes, 3-16
copying characters, 3-13
deleting, 3-18
delimiters, 10-7
description, 3-3
editing, 3-12
entering data, 3-7, 3-8
entering formulas, 3-23, 3-24
finding, 3-5, 3-19
formatting, 4-3
freezing values, 3-28
inserting, 3-14, 3-16, 3-17
linking, 10-4
moving, 3-13, 3-14, 14-4
"moving" border, 3-15, 10-3, 10-4
moving characters, 3-13
moving to, 3-5
moving within selected, 3-7, 12-4
names in, 3-25, 5-4
naming, 5-3
patterns, 4-8
printing range, 9-5
references to, 3-23, 3-24
replacing, 3-13
searching, 3-19
selecting, 3-3, 3-4, 3-5, 3-6
selecting all, 3-4
separate lines in, 4-5
shading, 4-7
solving for values, 6-7
sorting, 3-20
styles, 4-11
summing, 3-25
tabs in, 4-6
types of contents, 3-6
visible, 5-10
Center Across Columns button, 4-5, 14-5
centering text, 4-5, 14-5
characters. *See* text
charts
arrows, 8-11
axis titles, 8-9
chart titles, 8-9
creating, 8-3, 8-4
data, 14-8
deleting, 2-6
description, 8-3
documents, 8-4
editing, 8-4, 8-5
embedded, 8-3, 8-7
formats, 8-4, 8-5
formatting, 8-13, 8-14

labeling, 8-9
legends, 8-12, 8-13, 14-7
opening, 8-7
perspective, 8-14
plot area, 8-3, 8-8, 8-13, 14-8
preferred format, 8-6
problems with, 14-7
selecting, 8-8
selecting items, 8-8
shortcut keys, 12-5
spell-check, 3-20
templates, 5-11
text, 8-8, 8-10, 8-11
types, 8-2, 8-4, 8-5
visible cells, 5-10
Word for Windows, 8-2
ChartWizard button, 8-3
checking spellling, 3-20
choosing. *See* selecting
circles, 4-10
Clear command, 3-17, 5-6, 8-10
clearing. *See* deleting
cells, 3-17
columns, 3-17
formatting, 3-17
outlines, 5-10
ranges, 3-18
rows, 3-17
Close All command, 2-5
Close command, 2-5
closing documents, 2-5
codes (format), 4-4
collapsing outlines, 5-9
column charts, 8-4
columns
centering text across, 4-5, 14-5
clearing, 3-17
copying, 3-13, 3-14
deleting, 3-18
description, 3-3
freezing, 6-5
headings, 6-3, 9-7
hiding, 4-7
inserting, 3-16, 3-17
moving, 3-13, 3-14
outlining, 5-7, 5-8
resetting width, 4-6, 4-7
selecting, 3-4
sorting, 3-20, 7-8
summing cells, 3-25
titles, 6-5, 9-10
unhiding, 4-7
width, 4-6, 14-3, 14-5
Column Width command, 4-6, 4-7
command macros, 11-3
commands
repeating, 3-11
undoing, 3-11
comparison operators, 7-11
computing. *See* calculating
Contents button, 10-12, 14-9
contents (workbooks), 10-12
Copy button, 3-13, 3-14, 3-15, 3-16, 10-3
copying
attributes, 3-16
between worksheets, 10-3
cells, 3-13, 3-14, 14-4
characters, 3-13
columns, 3-13, 3-14
references, 3-24
rows, 3-13, 3-14
styles, 4-12
workbook documents, 10-13
creating. *See* adding
backup copies, 2-5
charts, 8-3, 8-4
databases, 7-4
embedded objects, 10-8, 10-9, 10-10
footers, 9-9
headers, 9-9
outlines, 5-7

scenarios, 6-8
series, 3-9
styles, 4-11
summaries (scenario), 6-10
templates, 5-11
trends, 3-9, 3-10
windows, 6-4
workbooks, 10-11
worksheets, 2-3, 3-3
criteria
setting, 7-6, 7-10
types, 7-11
custom dictionary, 3-21
Customer Support. *See inside back cover*
Cut command, 3-13, 3-14
cutting. *See* clearing, deleting, moving

D

data
description, 3-7
editing, 3-12
entering, 3-7, 3-8
font size, 4-3
formatting, 4-3
problems with, 14-3
source, 10-4, 10-5
databases
creating, 7-4
criteria, 7-6, 7-10
data forms, 7-5, 7-6
designing, 7-3
editing, 7-6, 7-7
expanding, 7-5, 14-7
extracting records, 7-12, 14-7
functions, 13-25
printing, 7-13
problems with, 14-7
records, 7-4
searching, 7-6
shortcut keys, 12-8
sorting, 7-8, 14-7
data forms, 7-5, 7-6
data markers (chart), 8-8, 8-9
data series (chart), 8-8, 8-9, 8-12, 14-8
dates
entering, 3-8
formatting, 3-8, 4-4
functions, 13-8
headers and footers, 9-9
problems with, 14-3
series, 3-9
Define Name command, 5-3, 5-4, 14-5
degrees, 13-9
Delete Arrow command, 8-11
Delete command, 2-6, 3-18
deleting. *See* clearing
arrows, 8-11
cells, 3-18
chart legends, 8-12
columns, 3-18
documents, 2-6
names, 5-5
records, 7-7
rows, 3-18
styles, 4-13
text boxes, 5-6, 8-10
views, 6-6
delimiter characters, 10-7
Demote button, 5-8
demoting (outlining), 5-8
Descending Sort button, 3-20
dictionary (spelling), 3-21
Display command, 6-3
displaying
documents, 9-3
scenarios, 6-9
toolbars, 12-9
views, 6-6
docking (toolbars), 12-10

documents. *See* worksheets
backup copies, 2-5
bound, 10-11, 10-14
charts, 8-4, 8-7
closing, 2-5
copying, 10-13
copying between, 10-3
deleting, 2-6
embedded objects, 10-8, 10-9
file problems, 14-8
layout, 9-7
linking data, 10-4, 10-9, 10-10
moving, 10-13
opening, 2-3
other applications, 2-4, 10-7, 10-8
passwords, 2-7, 2-8
previewing, 9-3
printing, 9-5
protecting, 2-7
read-only, 2-3, 2-7
renaming, 2-5
reordering, 10-13
saving, 2-4
selecting, 10-12
shortcut keys, 12-7
templates, 5-11
unbound, 10-11, 10-14, 14-10
workbooks, 10-11
dollar-sign (references), 3-23
drawing
arrows, 8-11
ovals, 4-10

E

editing
cells, 3-12
charts, 8-4, 8-5
data, 3-12
embedded objects, 10-10
names, 5-4
problems with, 14-4
records, 7-6
scenarios, 6-10
shortcut keys, 12-5
source data, 10-4, 10-5
styles, 4-12
templates, 5-12
text boxes, 5-5, 8-10
worksheets, 3-12
embedded charts, 8-3, 8-7
embedded objects, 10-8, 10-9, 10-10, 14-10
enter box, 3-7
entering
data, 3-7, 3-8
dates and times, 3-8
formulas, 3-23, 3-24
problems with, 14-3
series, 3-9
error values, 3-23, 13-4, 14-4, 14-5
Exit And Return command, 10-8
expanding outlines, 5-9
exponential growth trend, 3-10
external references, 10-4, 10-5, 10-6
Extract command, 7-12
extracting records, 7-12, 14-7

F

FALSE, 13-4
fields (database), 7-3, 7-4
file functions, 14-10
files. *See* documents, worksheets
problems with, 14-8
fill handle
copying cells, 3-13
forecasts, 3-10
inserting cells, 3-16
series, 3-9
financial functions, 13-5
Find command, 3-19

finding
  cells, 3-5, 3-19
  records, 7-6
  text, 3-19
Fn key, 1-8
Font command, 4-3
fonts
  applying, 4-3
  in styles, 4-11
  size, 4-3
footers (page), 9-3, 9-9
forecasts, 3-10
format codes, 4-4
format (file), 2-4, 10-7, 10-8, 14-8, 14-9
formatting
  arrows, 8-11
  chart legends, 8-13
  charts, 8-4, 8-5, 8-14
  clearing, 3-17
  copying, 3-16
  data, 4-3
  dates, 3-8, 4-4
  numbers, 4-4
  plot area, 8-13
  preferred (charts), 8-6
  problems with, 14-5
  shortcut keys, 12-6
  styles, 4-11
  templates, 5-11
  text boxes, 5-6, 8-11
  times, 3-8, 4-4
Form command, 7-5, 7-6, 7-7
forms (database), 7-5, 7-6
formula bar
  description, 3-7
  editing data, 3-12
  shortcut keys, 12-7
formulas
  combining into cells, 3-15
  copying, 3-16
  criteria, 7-11
  description, 3-22
  displaying, 6-3
  entering, 3-23, 3-24
  external references, 10-4, 10-5
  freezing value of, 3-28
  functions in, 3-25
  multiple lines, 4-5
  names in, 3-25, 5-4
  naming, 5-3
  operators, 3-22
  problems with, 14-5
  selecting, 3-6
  solving, 6-7
  tabs in, 4-6
  updating values, 3-27
Freeze Panes command, 6-5
freezing
  cell values, 3-28
  titles, 6-5
functions (macro), 13-2
functions (worksheet)
  alphabetic list, 13-3
  arguments, 13-4
  database, 13-25
  date, 13-8
  descriptions, 3-25, 13-4
  financial, 13-5
  information, 13-30
  in formulas, 3-25
  logical, 13-29
  lookup, 13-23
  math, 13-9
  pasting, 3-25
  problems with, 14-4
  reference, 13-23
  statistical, 13-14
  syntax conventions, 13-4
  text, 13-27
  time, 13-8
  trig, 13-9

G

Global macro sheet, 11-3
Goal Seek command, 6-7
goal seeking, 6-7
Goto command, 3-6, 4-7
gridlines, 6-3, 9-7

H

headers (page), 9-3, 9-9
headings (row-column), 6-3, 9-7
Help, 1-8, 12-3
Hewlett-Packard. *See inside back cover*
hiding
  columns and rows, 4-7
  gridlines, 6-3
  headings, 6-3
  outline symbols, 5-9
  toolbars, 12-9

I

information functions, 13-30
Insert command, 3-17
inserting. *See* adding
  cells, 3-14
  columns, 3-16, 3-17
  functions, 3-25
  ranges, 3-16, 3-17
  rows, 3-16, 3-17
insertion point, 3-12
Insert Object command, 10-8
Insert Paste command, 3-14
italic text, 4-3

J

Justify Align button, 4-5
Justify command, 4-5
justifying text, 4-5

K

keyboard shortcuts, 11-3, 12-3

L

labels (chart), 8-9
landscape orientation, 9-8
layout (pages), 9-7
least-squares fit, 3-9, 3-10
left aligning, 4-5
Left Paging button, 10-12, 14-9
Legend button, 8-12
legends
  adding, 8-12
  deleting, 8-12
  formatting, 8-13
  problems with, 14-7
linear forecast, 3-10
linear trend, 3-10
line charts, 8-4
linking
  cells, 10-4
  other applications, 10-9, 10-10
  problems with, 14-10
  redirecting links, 10-6
  source data, 10-4, 10-5
Links command, 10-5, 10-6
logical values
  arguments, 13-4
  functions, 13-29
lookup functions, 13-23

M

macro functions, 13-2
macros, 11-3, 14-10
magnification
  printing, 9-8
  worksheets, 6-6
Main Chart command, 8-5
manual calculation, 3-27
manual page breaks, 9-8, 9-9
margins, 9-3, 9-7
markers (chart), 8-8, 8-9
matching. *See* criteria
math functions, 13-9

Microsoft Excel
  earlier versions, 14-9
  Help, 1-8, 12-3
  overview, 1-3
  starting, 1-8
Microsoft Word (bar charts), 8-2
moving
  cells, 3-13, 3-14, 14-4
  characters, 3-13
  columns, 3-13, 3-14
  rows, 3-13, 3-14
  shortcut keys, 12-3
  to cells, 3-5
  toolbars, 12-10
  within selection, 3-7, 12-4
  workbook documents, 10-13
"moving" border, 3-15, 10-3, 10-4

N

names
  creating, 5-3
  deleting, 5-5
  editing, 5-4
  list of, 5-3
  pasting, 3-25, 5-4
New command, 8-4, 10-11
New Windows command, 6-4
New Worksheet button, 2-3, 3-3
notes
  clearing, 3-17
Number command, 4-4
numbers
  aligning, 4-5
  arguments, 13-4
  entering, 3-7
  formatting, 4-3, 4-4
  selecting, 3-6
  series, 3-9

O

objects (embedded), 10-8, 10-9, 10-10
Open File button, 2-3, 5-11, 5-12, 8-7, 10-7
opening
  charts, 8-7
  documents, 2-3
  windows, 6-4
operators
  criteria, 7-11
  formulas, 3-22
orientation (printing), 9-8
Outline command, 5-7, 5-9
outlining
  adjusting, 5-8
  clearing, 5-10
  collapsing levels, 5-9
  creating automatically, 5-7
  creating manually, 5-8
  description, 5-7
  expanding levels, 5-9
  selecting sections, 5-9
  symbols, 5-9
  visible cells, 5-10
Oval button, 4-10

P

pages
  layout, 9-7
  page breaks, 9-8, 9-9
  page numbers, 9-9
  previewing, 9-3
  printing range, 9-5
  print order, 9-8
  titles, 9-10
  total number, 9-9
Page Setup command, 9-4, 9-7, 9-9
panes (windows), 6-4, 6-5
passwords, 2-7, 2-8
Paste command, 3-13, 10-3
Paste Function command, 3-25

Paste Link command, 10-4, 10-10
Paste Name command, 3-25, 5-4
Paste Picture Link command, 10-4, 10-10
Paste Special command, 3-15, 3-16, 3-28, 10-9, 10-10
pasting
  functions, 3-25
  names, 3-25, 5-4
  problems with, 14-4
patterns, 4-8, 4-11
Patterns command, 4-8
perspective (charts), 8-14
pie charts, 8-4
plot area
  description, 8-3
  formatting, 8-13
  problems with, 14-8
  selecting, 8-8
plotters, 14-9
plotting. *See* charts
portrait orientation, 9-8
Preferred Chart button, 8-6
preferred format, 8-6
previewing documents, 9-3
print area, 9-5
Print button, 9-3, 9-5
Print command, 7-13
printers, 9-4
printing
  cell ranges, 9-5
  databases, 7-13
  documents, 9-5
  gridlines, 9-7
  headings, 9-7
  magnification, 9-8
  page ranges, 9-5
  problems with, 14-9. *See also Operating Guide*
Print Preview command, 9-3
problems, 14-3
progressions, 3-9
Promote button, 5-8, 5-10
promoting (outlining), 5-8
protecting documents, 2-7

R

radians, 13-9
ranges. *See* cells
  arranging text across, 4-5
  auto-formatting, 4-9
  clearing, 3-18
  copying, 3-13
  description, 3-5
  entering data in, 3-8
  freezing values, 3-28
  inserting, 3-16, 3-17
  linking, 10-4
  naming, 5-3
  pasting names, 3-25, 5-4
  printing, 9-5
  sorting, 3-20
read-only documents, 2-3, 2-7
recalculating, 3-27
Record command, 11-3
recording macros, 11-3
Record Macro command, 11-3
records
  adding, 7-5
  creating, 7-4
  deleting, 7-7
  editing, 7-6
  extracting, 7-12
  finding, 7-6
  printing, 7-13
  sorting, 7-8
recovering. *See* undoing
redirecting links, 10-6
references
  arguments, 13-4
  copying, 3-24
  external, 10-4, 10-5, 10-6

finding, 3-6
functions for, 13-23
in formulas, 3-24
types, 3-23, 3-24
relative references. *See* references
arguments, 13-4
description, 3-23
Remove Page Break command, 9-9
Remove Print Area command, 9-6
Remove Print Titles command, 9-10
Remove Split command, 6-5
renaming documents, 2-5
reordering documents, 10-13
repair service. *See inside back cover*
Repeat command, 3-11
repeating actions, 3-11
Replace command, 3-19
replacing. *See* finding
cells, 3-13
text, 3-19
resizing
columns and rows, 4-6, 4-7
problems with, 14-3
text, 4-3
right aligning, 4-5
Right Paging button, 10-12, 14-9
Row Height command, 4-6, 4-7
rows
clearing, 3-17
copying, 3-13, 3-14
deleting, 3-18
description, 3-3
freezing, 6-5
headings, 6-3, 9-7
height, 4-6
hiding, 4-7
inserting, 3-16, 3-17
moving, 3-13, 3-14
outlining, 5-7, 5-8
resetting height, 4-6, 4-7
selecting, 3-4
sorting, 3-20, 7-8
summing cells, 3-25
titles, 6-5, 9-10
unhiding, 4-7
Run command, 11-4

S

Save As command, 2-4, 2-5, 2-7, 5-11, 10-8
Save File button, 2-4, 5-12
saving
automatically, 2-4
documents, 2-4
manually, 2-4
views, 6-6
scaling. *See* zooming
scatter charts, 8-4
Scenario Manager, 6-7
scenarios
creating, 6-8
description, 6-7
editing, 6-10
summaries, 6-10
viewing, 6-9
scrolling
freezing, 6-5
synchronizing, 6-4
searching. *See* finding
Select All box, 9-6
Select All button, 3-4, 9-9
Select Chart command, 8-11
selecting
all cells, 3-4
blocks of cells, 3-5
cells, 3-5
cell types, 3-6
chart items, 8-8
charts, 8-8
formula cells, 3-6
nonadjacent cells, 3-4
outline sections, 5-9

printers, 9-4
ranges of cells, 3-4, 3-5
rows or columns, 3-4
shortcut keys, 12-3
single cell, 3-3
visible cells, 5-10
workbook documents, 10-12
selection
moving within, 3-7, 12-4
Select Special command, 3-6
Select Visible Cells button, 5-10
series
chart data, 8-8, 8-9, 8-12
sequential values, 3-9
Series command, 3-10
service. *See inside back cover*
Set Criteria command, 7-10
Set Database command, 7-4
Set Extract command, 7-12
Set Page Break command, 9-8
Set Preferred command, 8-6
Set Print Area command, 7-13, 9-5
Set Print Titles command, 9-10
shading cells, 4-7, 4-8
shortcut keys
commands, 12-3
macros, 11-3
Show Outline Symbols button, 5-9
sizing
columns and rows, 4-6, 4-7
problems with, 14-3
text, 4-3
Sort Ascending button, 7-8
Sort command, 3-20, 7-8
Sort Descending button, 7-8
sorting
cells, 3-20
databases, 7-8, 14-7
problems with, 14-7
undoing, 7-9
source data, 10-4, 10-5
spell checking, 3-20
Spelling command, 3-20
Split command, 6-4
splitting windows, 6-4
Start Recorder command, 11-4
statistical functions, 13-14
Stop Recorder command, 11-3, 11-4
Style command, 4-11, 4-12, 4-13
styles
applying, 4-11
copying, 4-12
creating, 4-11
deleting, 4-13
description, 4-11
editing, 4-12
templates, 5-11
Styles command, 4-12
SUM function, 3-25, 13-13
summaries (scenarios), 6-10
synchronized scrolling, 6-4
syntax (functions), 13-4

T

tabs, 4-6
templates
charts in, 5-11
creating, 5-11
description, 5-11
editing, 5-12
formatting, 5-11
styles, 5-11
using, 5-11
text
aligning, 4-5
arguments, 13-4
arranging across cells, 4-5
boxed text, 5-5, 5-6
centering across columns, 4-5, 14-5
charts, 8-8
copying, 3-13
deleting, 8-10

delimiters in files, 10-7
editing, 8-10
entering, 3-7
finding, 3-19
fonts, 4-3
formatting, 4-3, 5-6, 8-11
functions, 13-27
justifying, 4-5
moving, 3-13
replacing, 3-19
size, 4-3
spell-check, 3-20
wrapping, 4-5
Text Box button, 5-5, 8-8
text boxes
adding, 5-5, 8-8
deleting, 5-6, 8-10
editing, 5-5, 8-10
formatting, 5-6, 8-11
spell-check, 3-20
Text command, 5-6
text files, 10-7
tiled windows, 6-4
times
entering, 3-8
formatting, 3-8, 4-4
functions, 13-8
headers and footers, 9-9
problems with, 14-3
series, 3-9
titles (chart), 8-9
titles (row-column)
adding, 9-10
freezing, 6-5
printing, 9-10
toolbars, 12-9, 12-10
Toolbars command, 12-9
totals (formula), 3-25
trends, 3-9, 3-10
trig functions, 13-9
troubleshooting, 14-3
TRUE, 13-4

U

unbound documents, 10-11, 10-14, 14-10
Undo command, 3-7, 3-11
undoing
actions, 3-11
data entry, 3-7
sorting, 7-9
Undo Sort command, 7-9
Unfreeze Panes command, 6-5
unhiding
columns and rows, 4-7
outline symbols, 5-9
Update command, 10-10
updating. *See* editing

V

values
calculating, 3-27
combining into cells, 3-15
copying, 3-16
freezing, 3-28
solving for, 6-7
View command, 6-6
viewing
documents, 9-3
scenarios, 6-9
toolbars, 12-9
views, 6-6
views
displaying, 6-6
saving, 6-6
visible cells, 5-10

W

wildcard characters, 3-19
windows
arranging, 6-4
opening, 6-4
panes, 6-4, 6-5

scrolling, 6-4, 6-5
shortcut keys, 12-8
splitting, 6-4
Word for Windows (bar charts), 8-2
workbooks
adding documents, 10-12
bound documents, 10-11, 10-14
contents, 10-12
copying documents, 10-13
creating, 10-11
description, 10-11
moving documents, 10-13
problems with, 14-9
reordering documents, 10-13
selecting documents, 10-12
unbound documents, 10-11, 10-14, 14-10
worksheet functions, 3-25, 13-2
worksheets. *See* documents
backup copies, 2-5
clearing outlines, 5-10
closing, 2-5
copying between, 10-3
copying styles, 4-12
creating, 2-3, 3-3
deleting, 2-6
description, 3-3
display format, 6-3
editing, 3-12
embedded objects, 10-8, 10-9
file problems, 14-8
formatting, 4-3
functions for, 3-25, 13-2
gridlines, 6-3, 9-7
headings, 6-3, 9-7
linking data, 10-4, 10-9, 10-10
moving in, 3-5
new windows, 6-4
opening, 2-3
outlining, 5-7
panes, 6-4, 6-5
previewing, 9-3
printing, 9-5
redirecting links, 10-6
renaming, 2-5
saving, 2-4
scenarios, 6-8
selecting entire, 3-4
shortcut keys, 12-7
sorting, 3-20
source, 10-4, 10-5
spell-check, 3-20
views, 6-6
workbooks, 10-11
zooming, 6-6
wrapping text, 4-5
write-reservation, 2-7, 2-8

X

XLT extension, 5-11

Z

Zoom In button, 6-6
zooming
preview, 9-4
worksheets, 6-6
Zoom Out button, 6-6

Contacting Hewlett-Packard

For Information about Using This Product

If you have a general question about this product, or need information about other products, call our automated information service.

HP Customer Support Automated Information Service
(800) 443-1254 (toll free, no operator is available)
24 hours per day, 7 days per week

If you have a technical question not answered by the automated information service, call the phone number below for HP Customer Support. You can also mail or fax your questions (responses returned by mail, phone or fax within two weeks).

HP Mobile Computing Customer Support
1000 N.E. Circle Blvd.
Corvallis, OR 97330, U.S.A.
(503) 757-2004 (toll call)
(503) 750-5488 (toll call, fax)
5:00 am to 5:00 pm Pacific time, Monday–Friday excluding holidays

If you are outside the United States, contact your Hewlett-Packard dealer or sales office for technical information.

For Hardware Service

Before you send your unit for service, you must call HP Customer Support at the number listed below. See chapter 14 in the OmniBook *Operating Guide* for diagnostic instructions and other service information. The U.S. service center address is

Hewlett-Packard Corvallis Service Center
1030 N.E. Circle Blvd.
Corvallis, OR 97330, U.S.A.
(503) 757-2004 (HP Customer Support)

If you are outside the United States, contact your Hewlett-Packard dealer for troubleshooting assistance—see chapter 14 in the OmniBook *Operating Guide*.

Support programs and availability subject to change without notice.

Contents

1: Putting Microsoft Excel to Work
2: Managing Your Files
3: Creating and Editing Worksheets
4: Formatting Worksheets
5: Organizing Worksheets
6: Viewing and Analyzing Worksheet Data
7: Working with Databases
8: Working with Charts
9: Printing and Sending Documents
10: Working with Multiple Documents
11: Automating Tasks with Command Macros
12: Using the Keyboard and Toolbars
13: Worksheet Function Reference
14: If Things Go Wrong

HEWLETT PACKARD

For internal use only:
F1030-90074 (English)
Printed in U.S.A. 9/93

Part Number (P) F1030-90086 Edition 1